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I.

A HOARD OF PERSIAN SIGLOI.

[See PLATE I.]

THE hoard described in this paper was obtained for me some months ago from a Smyrna dealer by Mr. E. D. Barff. The dealer stated that there were originally 55 coins when he received them, but he had sold three before Mr. Barff secured the remainder. The find spot was said to be in Ionia.

The coins are all Persian sigloi, which have been a good deal worn in circulation, and many of them are stamped with punchmarks (see Figure, p. 5). It was these countermarks which first interested me in the hoard: but further examination showed some noteworthy characteristics in several of the incuse markings of the reverses. In the following list, therefore, I have described rather fully the incuse (I.) of each specimen, and added references to the punchmarks (P.): the weights are given in grammes: the condition of the coins may be taken throughout as worn, and the die position as approximately $\uparrow\uparrow$ or $\uparrow\downarrow$: in the cases where it can be determined by the presence of an intelligent design in the reverse it is $\uparrow\uparrow$, except in the group 36-40, where it is probably $\uparrow\downarrow$: all appear to be anvil-struck.

A. *Obv.*—Persian king kneeling r., holding in r. hand spear, in l. bow.

Rev.—Incuse of oblong shape.

1. I. irregular, with lump in middle joined by ridge to r.-hand side. P. (*rev.*) two obscure. Wt. 5-55.
 2. I. similar to last, but more rectangular in shape, extended above on r. P. (*obv.*) No. 1, (*rev.*) No. 13 and a rough lozenge. Wt. 5-53.
 3. I. similar. P. (*obv.*) No. 12, (*rev.*) Nos. 22 and 68. Wt. 5-47.
 4. I. similar. P. (on edge) obscure. Wt. 5-53.
 5. I. fairly regular, with tooth-like projections at top and rough masses in middle. P. (*obv.*) Nos. 7, 8, and 23, (*rev.*) Nos. 11, 16, 19, 21, and 25.¹ Wt. 5-43.
 6. I. rectangular, extended below on r., with two round lumps on l., the upper one joined to top, and slight ridges down r. side. P. (*obv.*) one obscure, (*rev.*) No. 20. Wt. 5-50.
 7. I. irregular, with broad band across from r. Wt. 5-51.
 8. I. irregular, with round lump at top, broad band downwards on r., and triangular mass on l. P. (*obv.*) No. 15, (*rev.*) No. 30. Wt. 5-52. [Pl. I.]
 9. I. almost fan-shaped, with curved line across field on r. and straight line across bottom. P. (*obv.*) Nos. 6, 36, and 45, (*rev.*) Nos. 37 and 53. Wt. 5-51. [Pl. I.]
 10. I. rather rounded, with slight cross-band. Wt. 5-51.
 11. I. fairly regular, with diagonal cross-band from above on l. P. (on edge) No. 34. Wt. 5-56.
 12. I. similar, but more irregular. Wt. 5-56.
 13. I. irregular, broken up by rough masses. Wt. 5-52.
 14. I. narrow, slightly curved, with central ridge. P. (*obv.*) No. 48, (*rev.*) Nos. 35, 47, 49, and 71. Wt. 5-53.
- B. *Obv.*—Persian king kneeling r., holding in r. hand dagger, in l. bow.

Rev.—Incuse of more or less oblong shape.

15. I. rather square, sides slightly curved, field plain. Wt. 5-51.

¹ The mark No. 25 is possibly an intaglio device in the incuse: it does not resemble the punchmarks in its character. If it is an intaglio, it may be compared with the coins Nos. 36-40.

16. I. similar. P. (*obv.*) Nos. 33 and 38, (*rev.*) No. 46.
Wt. 5-53.
17. I. similar. P. (*obv.*) No. 32, (*rev.*) one obscure. Wt. 5-53.
18. I. similar. P. (*obv.*) Nos. 3, 28, 42, and 70, (*rev.*) Nos. 4,
51, 54, 56, 58, 60, and 62. Wt. 5-50.
19. I. similar. P. (*obv.*) Nos. 9, 29, and 57, (*rev.*) No. 27.
Wt. 5-52. [Pl. I.]
20. I. similar. P. (*obv.*) No. 10, (*rev.*) one obscure. Wt. 5-51.
21. I. irregular, with lion's head l. in middle. Wt. 5-69.
[Pl. I.]
22. I. similar, lion's head touching r.-hand side. Wt. 5-67.
23. I. similar. Wt. 5-43.
24. I. similar. Wt. 5-51.
25. I. similar. Wt. 5-47.
26. I. similar. Wt. 5-53.
27. I. similar. Wt. 5-56.
28. I. similar, lion's head joined to r. side. Wt. 5-30.
29. I. similar. Wt. 5-38. [Pl. I.]
30. I. similar. Wt. 5-51.
31. I. similar. Wt. 5-62.
32. I. similar. P. (*rev.*) No. 72 and one obscure. Wt. 5-53.
33. I. rather irregular, with dotted device (lion's scalp?) on
r. side. P. (*obv.*) No. 26, (*rev.*) Nos. 59, 63, and 65.
Wt. 5-54.
34. I. similar. Wt. 5-50. [Pl. I.]
35. I. similar. P. (*obv.*) Nos. 5, 14, 41, and 64. Wt. 5-58.
36. I. of three very irregular parts (central one lion's head
r. in intaglio?). Wt. 5-48. [Pl. I.]
37. I. similar. P. (*obv.*) No. 55. Wt. 5-43.
38. I. similar. P. (*rev.*) No. 52. Wt. 5-46.
39. I. similar. Wt. 5-45.
40. I. similar. Wt. 5-50.
41. I. rather irregular, with diagonal cross-bar, in the centre
of which a device (stellate flower?). P. (*obv.*) No. 2,
(*rev.*) Nos. 31 and 69. Wt. 5-45. [Pl. I.]
42. I. similar. Wt. 5-68.
43. I. similar. P. (*rev.*) No. 43. Wt. 5-55.

44. I. irregular, with rough long bar upwards (bull butting r. ?). Wt. 5-34. [Pl. I.]
45. I. rough triangle, curved over at top. P. (*obv.*) No. 50, (*rev.*) No. 18. Wt. 5-42.
46. I. rather square, with irregular mass projecting from r.-hand corner. Wt. 5-54.
47. I. similar, but more oblong. Wt. 5-56.
48. I. rough square, with obliterated device in middle. P. (*rev.*) Nos. 17 and 67. Wt. 5-43.
49. I. irregular, with bar across lower end. P. (*obv.*) Nos. 40 and 44. Wt. 5-44.
50. I. very irregular, with bar from top and pellet in lower part. P. (*obv.*) one obscure. Wt. 5-30.
51. I. roughly similar. P. (*rev.*) No. 61. Wt. 5-62.
52. I. very irregular and broken up. P. (*obv.*) No. 24, (*rev.*) Nos. 39 and 66. Wt. 5-46.

With regard to the punchmarks, the majority seem to belong to the same class as those described by Rapson in *J. R. A. S.*, 1895, pp. 865 ff.: besides several examples of the simpler forms which he there took to be derived from Brahmi or Kharosthi characters, there are some more elaborate devices which, though not mentioned in the article, are to be found on the coins illustrated in the plate which accompanies it: good examples of this are Nos. 72, 70, and 60 of this series, which recur on Figs. 7, 12, and 20 of the plate. I understand from Mr. Hill that Professor Rapson does not now consider the Indian origin of these punchmarks to be proved: but it is not easy to determine in what other part of the Persian empire or the regions where its coinage circulated they can have been stamped. For the most part they are not Greek in style: they are very distinct as a class from the countermarks, presumably of Greek origin, which are found on Asiatic coins of the fourth century B. C.—for instance, on the

staters of Aspendos. The only example which might be expected to have come from the west of the Aegean is No. 49, which represents a tortoise: this mark recurs on a siglos in the British Museum [Pl. I. b], and in another case [Pl. I. c] we also find what may be the



regular Aeginetan reverse-stamp used as a punchmark. The tortoise in itself might equally well be Lycian as Aeginetan: but the use of the reverse-stamp is in favour of Aeginetan origin. But this solitary instance cannot carry the rest of the punchmarks with it as

Greek. Egypt may also be left out of account: coins found there dating from before Alexander are often cut, but not countermarked: and the punchmarks commonly found on Ptolemaic coins of the next century are of a rudimentary type, showing nothing so large or elaborate as many of the examples in this hoard. A more likely source, so far as the style goes, would be the South of Asia Minor or Cyprus: some of the forms would pass for Cypriote characters (*e.g.* Nos. 9, 26, 60), and the ankh, which occurs several times in slightly modified forms, is a favourite Cypriote symbol: also one or two of the countermarks (*e.g.* No. 10) might be meant for Phoenician letters. The triskelis (No. 51), which also appears on two sigloi in the British Museum, is more probably Lycian; and the tortoise, as already mentioned, may belong to the same district. The fact that the hoard was found in Ionia might weigh for a Levantine, rather than an Indian, origin for the countermarks: it is hardly likely that so large a proportion of the coins in the hoard would have been to India, although there would be nothing surprising in finding a few which had travelled as far. Similarly, most of the 44 sigloi in Mr. Newell's Cilician find (*Num. Chron.*, 1914, p. 1) were stamped with punchmarks of the same class as those under discussion. And the evidence as to provenance of the punchmarked sigloi in the British Museum, though not conclusive, tends to suggest that they come from the west rather than from the east of the Persian empire: a table with which Mr. Hill has kindly supplied me shows that of 71 punchmarked examples, 10 were acquired from Persia and 1 from India (2 others are possibly Oriental), as against 40 from Asia

Minor:² the provenance of the rest is non-significant or unknown. On the whole, therefore, there seems to be a presumption in favour of these marks having been placed on the coins by traders in Cyprus or neighbouring regions of the Levant.

The variations in the form of the incuse on the reverse of the sigloi, especially on those with the bow and dagger type, furnish another problem for solution. The specimens of class A show the field of the incuse, in almost every instance, broken by cross-bands or lumps of different sizes and shapes: but it is not possible to classify them in groups or detect any designs in the markings. The other class, however, is more informative.

The first clue to the meaning of the incuse devices is given by a group of specimens—Nos. 21–32—which show distinctly in the middle of the incuse a lion's head with open jaws. Such a device has not apparently been described previously in connexion with the Persian coinage of darics and sigloi: but other examples of this type exist in the British Museum [Pl. I. e] and at Cambridge. There are slight variations in the position of the head, which is sometimes clear in the field [Pl. I. 21], sometimes joined to the side of the incuse, as though standing out from a wall [Pl. I. 29]: but these variations are not likely to have any significance. The occurrence of a device in such a position would be most naturally explained by regarding it as a mint-mark: and this explanation

² This table includes 11 punchmarked sigloi from Mr. Newell's hoard presented by him to the British Museum. Of all the sigloi in the British Museum collection, only 5 are of certain Indian provenance, and of these 4 are not punchmarked at all.

would be supported if similar marks in the incuse were found on other sigloi.

There are three other groups of specimens in the hoard which do show what appear to be similar devices in the incuse. The coins Nos. 33-5 have, in the same position as the lion's head of the preceding group, an arrangement of dots [Pl. I. 34]: the exact object intended is obscure, but, as Mr. Hill has pointed out to me, it bears some resemblance to a lion's scalp. Whatever it may be, there can be little doubt that the motive for its introduction is the same as in the case of the lion's head.

Another group is formed by Nos. 36-40, which are connected by the fact that the incuse is broken into three curiously irregular parts, which are of very similar shape in all five examples. There is no raised device here as in the last two groups: but it is possible to see in the central part an attempt to represent a lion's head in intaglio [Pl. I. 36]: and this, if correct, gives this group a possible relation to the first. Instances of the probably contemporaneous use of designs in intaglio and in relief may be found on the electrum hectæ of Mytilene: and a more closely connected example of an intaglio device occurs on the reverse of the daric attributed to Cyrus [Pl. I. a], which bears, by the side of the incuse, a Satyr's head.²

The remaining group of three coins—Nos. 41-3—has a design more akin to those of the two first groups:

² An impression from the reverse, showing the Satyr's head in relief, is reproduced on the plate. Mr. Hill has pointed out that the head occupies exactly the same position in relation to the incuse on the British Museum and Paris specimens of this daric, and is evidently struck from the original die, not punched subsequently.

there is a raised device, consisting of a band diagonally across the incuse, in the middle of which appears a sort of stellate flower [Pl. I. 41].

The last nine specimens catalogued in class B have incuses of very different characters, and do not seem to lend themselves to classification. Guesses might be made in regard to some: for instance, in No. 44 the eye of faith might discern a bull butting, placed upwards in the field of the incuse: similarly, among the specimens in the British Museum, a dolphin might be discerned in the lower part of the incuse of one coin [Pl. I. d]. A clearer instance of a device, in a similar position to the lion's head, occurs on another British Museum siglos [Pl. I. f]: but the object represented is uncertain. Comparison of longer series of examples may possibly lead to some conclusion in regard to these.

If the devices placed in the incuses are mint-marks, the question naturally arises what mints they represent. In this connexion the largest group—that with the lion's head—may be compared with the first six coins of class B—Nos. 15–20. The latter have nothing in the nature of a mark in the incuse, which is quite plain, shallow, and fairly regular in shape [Pl. I. 19]: and the weights of the six specimens show little variation, the extreme difference being 0.03 gr. In the lion's head group the range of weight is much wider, from 5.30 to 5.69 gr. It would seem probable that the coins without a mint-mark, and with carefully adjusted weights, are the issues of a central mint of Persia, while those with mint-marks and more irregular weights come from provincial towns. Now five out of six coins of the group with plain incuse are punch-

marked, while only one of the twelve of the lion's head group has a punchmark. As the hoard was probably found in Ionia, and the origin of the punchmarks has been shown above to be presumably in Southern Asia Minor or Cyprus, if not further East, it is not unreasonable to suppose that the coins which normally are not punchmarked came from a mint nearer Ionia than those which normally are punchmarked. The style of the lion's head points to the same conclusion, as it is more Greek than Persian in treatment. If we are to look for a mint in Western Asia Minor for this group, the place which first suggests itself is Sardis: it was the chief seat of the Persian power in this region at the period when these coins were struck, and the lion's head would be an appropriate symbol for the city.⁴ It was presumably the mint of the Lydian kingdom: but no issues of the Persian period have hitherto been traced to it. As, however, about this time many of the satraps and rulers of the coastal districts of Asia Minor struck coins, there is no inherent improbability in the supposition that a mint existed at Sardis: and, as the types of the satrapal coinages can be classified as Greek or Persian in a scale of degrees varying roughly according to the predominant influences at their places of mintage, a series of sigloi of the ordinary Persian type, but distinguished by a symbol of Greek style on the reverse, would not be unsuited to the position of Sardis, which must have been mainly Persian, or at any rate Anatolian, in its culture at this period, although Greek ideas would be familiar there.

The other groups of coins with devices in the incuse

⁴ See the legend in *Hdt.* i. 84.

cannot be ascribed to any particular mint with so much probability as the lion's head group to Sardis. If the central part of the incuse on Nos. 36-40 is meant for a lion's head in intaglio, this group may also come from Sardis: and a slight argument for such an origin might be based on the fact that only two out of the five specimens are punchmarked: but this is not conclusive. Again, if the devices on the other two groups are respectively a lion's scalp and a stellate flower, homes might be found for them at Samos and Erythrae: but we should hardly expect either of these places to strike sigloi: moreover, these groups show a larger proportion of punchmarks than the lion's head one, and so might be regarded as probably derived from some mint further from Ionia than Sardis. A likelier origin for the lion's scalp device would be Lycia, where it was frequently used on coins approximately contemporary with these sigloi: and it would not be improbable that a Lycian dynast under Persian influence might issue coins of Persian types. As the number of examples in each of these groups is smaller than in the lion's head one, it may be supposed that the latter came from a mint which was either the most important in the region where mint-marks were used or the nearest to the spot where the hoard was buried: either of these theories would suit the ascription of the lion's head group to Sardis, but does not help to locate the others.

The hoard does not, unfortunately, throw any fresh light on the problem of the chronological sequence of the issues of sigloi. So far as their condition goes the specimens of the bow and spear, and bow and dagger, types are about equally worn, and there is

nothing to suggest that one group was earlier than the other.

In conclusion, I must express my indebtedness to Mr. Hill in connexion with the preparation of this article: he has freely communicated to me the results of his study of the Persian series, and his contributions to my conclusions are much more extensive than would appear from the occasional mention of his name above.

J. G. MILNE.

II.

THE COINAGE OF NERO.

AN INTRODUCTORY STUDY.

(SEE PLATE II.)

THE coinage of Nero not only possesses a unique importance as being one of the most complete monetary systems of antiquity, but offers a rich field of interest to the numismatist.

To aim at an exhaustive survey of the various coin-types with their probable bearing on contemporary history, though in itself a most fascinating study, is beyond the scope of these notes. The following paper is merely an attempt to deal with some of the more important problems which arise from a general consideration of the subject, and is therefore restricted to such coins of Nero as belong to the period of his principate.

Nero's coinage falls into two clearly defined periods, viz. (i) A.D. 54 to 63, and (ii) A.D. 64 to 68. Between these periods, i. e. during the latter part of the year 63 or the beginning of 64, must be placed the important monetary reform, which appears to have been carried out under the personal supervision of the Emperor. Of this monetary reform we shall speak in detail later. It is important, however, at the outset to emphasize this division of the coins into the two periods mentioned, since the distinctive characteristics of each

period are to be observed, both in the style and weight of the coins, and also in the particular reverse types which occur.

The coins of Period I (A.D. 54-63) consist mainly of dated gold and silver.

The portrait of the Emperor on the obverse shows him as a young man of about seventeen years of age, without either crown or laurel wreath.

The reverse types are confined to the following:

(a) The *Civic Crown of Oak*, encircling **EX. S. C.** Outside the crown is the legend **PONTIF. MAX. TR. P.** [or **TR. P. II, III, IIII, V, VI, VII. P. P.**]. In conjunction with **TR. P. VI** and **VII, COS. IIII** also occurs.

(b) A series of three types, closely related in style, representing the standing figures of *Ceres, Mars, and Roma*, with the legend, **PONTIF. MAX. TR. P. VII** [**VIII, VIII, or X**], **COS. IIII P. P.** In the field is **EX. S. C.**

(c) The coins of Nero and Agrippina Junior, which belong to the first few months of the reign, with the reverse types of (1) Quadriga of elephants, and (2) the Civic crown, similar to the above, in each case with **EX. S. C** in the field.

These three classes may be regarded as covering the entire series of gold and silver coins issued from the Roman mint during the period A.D. 54-63, with the exception of the limited number of coins struck to the memory of the deified Claudius.¹ Their chief characteristics are as follows:

(a) Their weight approximates to that of the coins

¹ The gold and silver *quinarii* with the type of *Victory*, and legends **ARMENIAC** and **VICT. AVG.** belong to mints outside Rome.

of Tiberius and Claudius; i. e. the aureus weighs 120·3 grains, or $\frac{1}{4}$ of a Roman pound; the denarius 60·15 grains, or $\frac{1}{8}$ of a pound.

(b) There is an entire absence of types bearing any historical allusion.

(c) The style and composition of the reverse types are poor. For example, the figures of *Ceres*, *Mars*, and *Roma* are drawn conventionally, the arrangement of the drapery is crude, and the pose of the figures stilted.

(d) On all the coins the formula **EX. S. C** occurs.

(e) No Senatorial brass appear to have been issued during the period.

This last point is perhaps the most remarkable, and causes not a little difficulty in assigning the historical connexions to some of the later coin-types. The main reason for this conclusion is that the style of the Emperor's portrait, found on all the brass coins, in no case corresponds with that of the dated gold and silver of this period, but closely resembles that found on the gold and silver of Period II (A. D. 64-8).

Some indirect support of the theory is found in the consistent occurrence of **EX. S. C** on the gold and silver of Period I. This formula cannot refer to the subject of the types, and consequently must refer to the particular issue of the coins. That is to say, if **EX. S. C** occurred only on the coins with the *Civic crown* it might be reasonable to infer that the reference was to the bestowal of the crown by the Senate; or even in the case of the *Quadrige* of elephants on the coins of Nero and Agrippina, the honours of the *Ludi Circenses* might conceivably be alluded to, since they were accorded by the sanction of the Senate; but the

occurrence of **EX. S. C** in conjunction with the *Ceres*, *Mars*, and *Roma* types can have no meaning unless the issue of the coins themselves was *ex Senatus consulto*.

We must therefore conclude that during the first period of the reign (A. D. 54-63) Nero waived his right of issuing gold and silver, which had been the Imperial perquisite since the monetary reform of Augustus (15 B.C.), and allowed to the Senate the sole right of coinage.

It may be objected that such procedure was inconsistent with the arbitrary policy usually ascribed to Nero. But in reply to this it is sufficient to point out that the tyrannical Nero, as known to popular history, did not come into being until after the removal of his chief advisers, Seneca and Burrus (A. D. 62). In the early years of his reign, Nero exhibited an almost exaggerated deference for the constitutional rights and dignity of the Senate. Thus, for example, Nero prohibited the sons of freedmen from entering the Senate, and those who had already gained admission were excluded from every greater magistracy.² In A. D. 60 the Senatorial Court of Civil Appeal was placed on the same level as the Imperial Court by enforcing litigants to deposit the same sum of money in whichever court their case was heard. "In legislation also, the Senate took a far more active part under Nero than had been possible under Claudius. Nero had expressly instanced Italy as the Senate's province of control; and in consequence it now intervened both in matters of public order and of local municipal jurisdiction."³

² Henderson's *Nero*, p. 86.

³ *Ibid.*, p. 87.

The history of the Roman Constitution during the Empire shows a general tendency towards absolutism on the part of the Emperor at the expense of the Senate, which year by year became more impotent. The early part of the reign of Nero marks one of those rare periods when the tendency was temporarily arrested, only to be followed by more violent reaction. Thus from A.D. 54 to 63 the Senate ruled in a truer sense than at any time since 27 B.C., whereas from A.D. 64 to 68 Nero aimed at crushing the Senate beneath a policy of personal absolutism which helped to bring about the revolution and civil wars of A.D. 68 and 69.

Whilst in possession of the right of coining gold and silver, the Senate appears, for the time, to have ceased to issue any brass coins, and the only copper coins which can with tolerable certainty be assigned to this period are (1) the heavy Semisses struck, presumably, at Lugdunum A.D. 60-3; (2) the series of Quadrantes, which have for their types the attributes of Minerva, namely, an owl on an altar or cista, an olive branch and a helmet on column with shield; and (3) certain Asses.

With respect to the two series of coins first mentioned a careful distinction should be made between the brass and copper. That is to say, the difference is not merely between coins of similar denominations and types struck in different metals, but between coins which belong to different periods.

THE REFORM OF THE COINAGE, A.D. 63.

The exact date of the reform cannot be determined from contemporary records, but the testimony of the coins leaves little doubt that the scheme was carried

out towards the end of A.D. 63 or the early part of 64. With the reform, the types characteristic of Period I disappear, together with the formula **EX. S. C** and the dates on the gold and silver. The earliest date on the new coinage is **TR. P. XII** (A.D. 64-5), but, since the new coins are for the most part undated, it is quite possible that their issue began some months earlier. The year 62 marks the turning-point, both in the career of Nero and also in the history of the Empire. The policy with respect to the Senate, which Nero followed under the direction of Seneca and Burrus, was now entirely reversed, so that his hatred of the Senate as a body, and of Senators in particular, passed into a proverb.

This change of attitude is important for our present consideration so far as it affected the coinage. Not only did Nero assume the monopoly of issuing gold and silver, but, as appears evident from the coins, he encroached upon the Senate's right of issuing the baser metals. The omission of **S. C** from a number of brass and copper coins is one of the features of Nero's coins which admits of no other explanation [**Pl. II. 1**]. The coins in question cannot be classed as medallions (a term terribly misapplied), as they clearly belong to the current denominations of Sestertii, Dupondii, or Asses. They must therefore be regarded as *Imperial* rather than Senatorial brass or copper.

To what extent Nero personally supervised the productions of the Senatorial, as well as the Imperial, mint is a matter of some interest, but lies entirely in the sphere of speculation or, at best, probability. Nero was above all things an artist, and in all matters pertaining to art his tastes were essentially Greek.

The numerous indications of Greek design and Greek workmanship displayed on the brass and copper coinage of the period A.D. 64-8 strongly suggest the personal guidance of the royal artist.

Passing on to the details of the monetary reform, it will be simpler to consider the reform in respect of (1) the Gold and Silver; (2) the Brass and Copper Coinage.

(1) *The Reform of the Gold and Silver.*

From the time of Augustus, the aureus had been issued at the weight of 7.8 grammes (120.3 grains), or $\frac{1}{12}$ of a Roman pound (327.45 grammes). The denarius weighed 3.9 grammes (60.15 grains), or $\frac{1}{8}$ of a pound.

The aureus was now reduced to $\frac{1}{15}$ of a pound, or 7.27 grammes (113.5 grains), and the denarius to $\frac{1}{16}$, or 3.41 grammes (52.64 grains). At the same time the amount of alloy in the silver was increased from 5 to about 10 per cent.

Various suggestions have been made to explain this reduction in weight of the gold and silver, of which the following are worth noticing:—

(a) It has been regarded as the first step in that process of debasement, carried on during the first three centuries of the Empire, which finally [c. A.D. 260] diminished the gold to almost half its original weight, and reduced the silver to a mere apology of plated copper. The silver offered the most obvious means of perpetrating this organized fraud on the national credit, necessitated, of course, by the periodical exhaustion of the Imperial exchequer in consequence of the court expenses and the ever-increasing demand for military payments. Inasmuch as Nero added

a greater percentage of alloy to the silver, the foregoing reasoning may be held to offer some explanation. But the reduction of the weight surely possesses a different significance. The Neronian weight remained practically the same, in spite of debasement in the quality of the metal, until the beginning of the third century. Therefore, if financial economy had been the only object in view, the percentage of alloy might easily have been increased without affecting the weight of the denarius.

(b) It has been rather curiously suggested that the gold and silver were reduced in weight in order to restrain the increasing flow of silver to the East. Oriental goods, being in great demand, considerably exceeded the amount of exports to the East, and, in consequence, the balance had to be paid in cash. It is not easy, however, to see how the reduction of the gold and silver currency was likely to affect this drain, although it is not altogether improbable that the reduction may have been partly necessitated by it.

(c) The most interesting suggestion has, however, been made by M. Soutzo,⁴ in which he maintains that the reduction of the gold and silver was not actuated by financial stress, but was a carefully thought-out system, the object of which was to unify the standard of coinage throughout the Empire. That is to say, the new Roman coins were expressly adapted to the Greek coinage in proportional values, which henceforth could be easily reckoned, whereas the Roman system hitherto had been irrespective of the Greek.⁵ It must be

⁴ *Revue Numismatique*, 1898, pp. 659-66.

⁵ Henderson's *Nero*, p. 84.

admitted that this theory possesses a certain attractiveness as being quite in keeping with Nero's policy. The very magnitude of the conception is not more surprising than many of Nero's enterprises, as, for example, his building schemes in Rome or his engineering projects of cutting canals through the Isthmus of Corinth or from Lake Avernus to Ostia; while the practical end gained by promoting better commercial relations between East and West, and particularly between the Greek world and the Roman, fully justified it as a financial experiment.⁶

(2) *The Reform of the Brass and Copper Coinage.*

Nero's reform of the brass and copper coinage opens up several problems of considerable interest. M. Soutzo's statement that "the monetary system of Nero is the most important known to us from ancient times" is by no means extravagant. But his amplification of the idea by maintaining further that Nero harmonized the entire monetary system of the Empire, and that *all* his coins possess a dual aspect of being both Roman and Greek, scarcely seems to be borne out by a study of the coins. Nero certainly appears to have aimed at bringing some of the existing systems into line by issuing coins of similar values in brass and copper, but that is not quite the same thing as unifying the Imperial currency. Moreover, neither the coin-weights, as quoted by M. Soutzo,⁷ nor his

⁶ M. Soutzo's elaborate statistics will be found in tabulated form in the article already referred to, *Rev. Num.*, 1898.

⁷ In an elaborate table, M. Soutzo gives the weights of Nero's coins thus: *Sestertius* = 25.55 grammes [394.28 grains]; *Dupondius* = 20.43 grammes [315.27 grains]; *As* = 10.21 grammes [157.56

consequent deductions from them bear the test of actual investigation.

Viewed in its more general aspect, Nero's reform was an extension of the brass and copper system inaugurated by Augustus in 15 B.C.

The factors of this system were the Sestertius and Dupondius of brass, and the As and Quadrans of copper. To these Nero added the As struck in brass [Pl. II. 4], the Semis of both brass [Pl. II. 5] and copper [Pl. II. 6], and the Quadrans of brass [Pl. II. 7].

The practical usefulness of the Semis as an intermediate value between the As and Quadrans is self-evident. It is, however, not quite so obvious what particular end was gained by the duplication of the As, Semis, and Quadrans (i.e. in both brass and copper). It has already been mentioned that certain examples of the copper Semis and Quadrans belong to the period prior to the monetary reform, and that in the year 63 they were superseded by brass coins bearing the same types. It is clear, therefore, that Nero intended the Imperial coinage to be reckoned primarily on the brass standard, and this is further emphasized by the fact that marks of value appear on the brass which do not occur on the copper. But the copper coins of intermediate sizes with the brass no doubt considerably facilitated interprovincial exchange.

Our next consideration is concerned with the standard of weights upon which Nero's reformed coinage was based. At the time of Augustus, the Sestertius

grains]. These figures, however, bear but little correspondence with the weight of actual specimens; for example, the average weight of the Sestertius is certainly greater than 25.55 grammes, whereas the Dupondius *never* approaches so heavy a weight as 20.43 grammes.

weighed one ounce [421 grains, or 27·28 grammes]. This weight seems to have been maintained more or less consistently, and Nero does not appear to have made any change. It must be remembered that the Romans never aimed at anything like the metric accuracy which distinguishes the Greek coins. The variation in weight between a number of well-preserved specimens of coins of the same denomination is considerable; it is therefore by no means easy to deduce the nominal or theoretical weight of any particular coin absolutely. Nero's Sestertii range from about 380 to 480 grains,⁵ giving an average of 419 grains, which however approximates very nearly to the nominal 421 grains, so that there seems sufficient justification for assuming that Nero's Sestertius was issued at the traditional weight of one ounce.

The question of the weights of the Dupondius and copper As is somewhat more difficult. It has been frequently stated that the Dupondius of brass and the As of copper were issued at nominally the same weight [i.e. half an ounce], and that, since the one coin was twice the value of the other, the ratio between brass and copper was as 2 to 1. But, making due allowance for variation in the coins, it seems extremely doubtful whether this was ever the case; and moreover, it is certain that, intrinsically, brass was not twice as valuable as copper, so that the ratio of 2 to 1 could not be maintained without giving to the brass a purely fictitious value. During the period from the reign of Augustus to Claudius the Dupondius as a rule weighs more than half an ounce, while the As weighs

⁵ This result was arrived at by weighing fifty finely preserved specimens.

invariably less. It is possible that the proportion between the two coins was not exactly fixed; however, with Nero's reform a definite standard of weight seems to have been aimed at, and the ratio between the two metals fixed in accordance with their ordinary commercial values. Nero's Dupondii [Pl. II. 2] seldom fall below the weight of half an ounce (210.5 grains), whereas they not infrequently reach 260 or even 270 grains. The copper Asses [Pl. II. 3], on the other hand, seldom exceed 180 grains. By weighing 26 Dupondii and 30 copper Asses, all in fine condition, the average weight of the Dupondius is found to be 234.3 grains, and that of the copper As 163.6 grains. That is to say, the Dupondius is approximately one and a half times the weight of the As; it follows therefore that the ratio between brass and copper cannot be as 2 to 1. We may safely assume that in drawing up a system of coin-weights fairly simple fractions of the pound would be adopted for the different denominations. Neither Dupondius nor As was issued at $\frac{1}{2}\text{r}$ of a pound, as we have already shown, but the two fractions $\frac{1}{20}$ and $\frac{1}{30}$ stand in exact proportions above and below $\frac{1}{2}\text{r}$, or half an ounce. That is to say,

$\frac{1}{20}$ of a pound = 252.6 grains, or $210.5 + 42.1$ grains.

$\frac{1}{30}$ of a pound = 168.4 grains, or $210.5 - 42.1$ grains.

Again, 252.6 is exactly $1\frac{1}{2}$ times 168.4.

Now it will be seen that these two weights 252.6 and 168.4 grains very nearly approximate to the average weights of the Dupondius and copper As respectively. To be exact, they are slightly above the average, which is to be expected, while they fall well within the range of well-preserved specimens. We

may conclude therefore that Nero established the Dupondius at 252.6 grains, or $\frac{1}{20}$ of a pound, and the copper As at 168.4 grains, or $\frac{1}{30}$ of a pound. Thus it follows that the ratio between brass and copper was as $1\frac{1}{2} : 1$, which may reasonably be conceived as being the commercial value of the two metals.

The lesser denominations, i.e. the As, Semis, and Quadrans of brass, and the Semis and Quadrans of copper, appear to fall regularly in proportional fractions of Dupondius and copper As respectively. Thus the reformed coinage may be summarized as follows:

BRASS.

Sestertius . . .	421	grains =	$\frac{1}{12}$	of a pound.
Dupondius . . .	252.6	" =	$\frac{1}{20}$	"
As	126.3	" =	$\frac{1}{40}$	"
Semis	63.15	" =	$\frac{1}{80}$	"
Quadrans . . .	31.5	" =	$\frac{1}{160}$	"

COPPER.

As	168.4	grains =	$\frac{1}{30}$	of a pound.
[Semis	84.2	" =	$\frac{1}{60}$	"
[Quadrans . . .	42.1	" =	$\frac{1}{120}$	"

It will be noticed that, although from the Dupondius downwards the regular proportion of weights is maintained (i.e. each denomination is twice the weight of the one next below it), we find the Sestertius is not actually twice the weight of the Dupondius. The explanation of this appears to be that the framers of Nero's reformed system had succeeded in accomplishing two things—(1) the relative value of brass and copper had been definitely fixed at the proportion of $1\frac{1}{2}$ to 1; that is to say, of brass and copper coins, equal as regards their face value, the copper was one and a third times the weight of the brass. (2) By reducing the

weight of the denarius the value of silver relative to bronze was enhanced.

These two facts necessarily involved a slight loss on the brass coinage, which was to some extent compensated for by continuing to issue the Sestertius at $\frac{1}{12}$ of a pound instead of raising it to $\frac{1}{10}$. So that the Sestertius was equivalent to four Asses of brass in point of value although inferior in actual weight. It appears, moreover, that Nero was unwilling to interfere with the traditional weight of the Sestertius, since it was the basis on which sums of money were computed, despite the fact that the unit of the Roman monetary system was the As.

In putting the above weights to the test it will be found that a discrepancy occurs in the case of the copper Semisses of the *Certamen Quinquennale* type [Pl. II. 8] and some of those with *Roma seated*, which weigh on the average about 100 grains, and therefore bear no relation to the weights of Nero's reformed standard. The same is true of the copper Quadrantes [Pl. II. 9] with the type of the Helmet on column, &c., which tend to exceed the nominal weight of 42.1 grains, given in the foregoing table. But if we assume that these Semisses and Quadrantes were issued previous to the monetary reform, on the older standard of weight; and that, in A.D. 63, they were superseded by the brass coins bearing the same types, but on the reformed standard, their place amongst Nero's coins becomes intelligible.

The copper Semisses in question belong apparently to Lugdunum, where the standard of the copper As at approximately half an ounce (210.5 grains) may have existed. If so, the normal weight of the copper Semis

would be 105.25 grains, and that of the Quadrans 52.6 grains, which certainly corresponds with the actual weight of the coins. It is not quite certain whether any copper Semisses and Quadrantes were issued after the brass coins of similar denominations were introduced. Some of the copper Semisses (type of *Roma seated*) appear to conform to the weight of about 84.2 grains, and may be assigned to the period 64-8 A.D., but the variation in these smaller coins renders any deduction from them somewhat inconclusive.

We are left in no doubt as to the denominational value of Nero's brass coins, owing to the fact that on certain pieces are found the symbols Π , $\bar{\Gamma}$, and S [see Pl. II. 2, 4, 5], thereby determining them as Dupondii, Asses, and Semisses respectively.⁹

The marks of value only occur with the following reverses :

Π with **SECVRITAS AVGVSTI**; **VICTORIA AVGVSTI** and **MAC AVG** (Macellum).

$\bar{\Gamma}$ with **GENIO AVGVSTI** and **PONTIF MAX TR P** (or **POT**) **IMP P P** (Nero as Apollo).

S with **CERT QVIN ROM CO.** and *Roma seated*.

The symbols are peculiar to the coinage of Nero. It is not surprising that the brass As and Semis were stamped with their marks of value, since they were practically new coins.¹⁰ In the case of the Dupondius

⁹ There is, however, in the British Museum, a copper As of the type **PONTIF MAX** &c., "*Nero as Apollo*," with the mark of value $\bar{\Gamma}$. This example, although most unusual, is important, since it gives additional proof that the brass and copper Asses were of equal value while differing both in size and weight.

¹⁰ The brass Semis had not hitherto been struck at Rome, but similar coins occur during the previous reigns from the mint of Lugdunum.

it is more remarkable. For upwards of half a century the people of Rome had been familiar with the Dupondius of brass and the As of copper, practically equal in size; and, although a surface of patina frequently makes it difficult for us to distinguish the one from the other, no such confusion was likely to occur whilst the coins were in circulation.

If, however, we assume that Nero projected the issue of the newer Imperial coinage on the brass standard, the marks of value would be necessary to determine their particular denomination through the various provinces of the Empire.

Whatever theory we may adopt as to the exact purpose and scope of Nero's elaborate monetary system, the fact remains that, as far as the brass and copper coinage is concerned, it was discontinued after his death, and his successors were content to fall back upon the simpler, if less complete, system of Augustus.

THE DATING OF NERO'S COINS.

During the first period of the reign (A.D. 54-63) the *Tribunician* date occurs regularly on the gold and silver, and during the years 64-8 dates are found on a few specimens of the brass.

There is some discrepancy, however, between the coin-dates and the date of the actual renewal of the *Tribunicia potestas* as given in contemporary records.¹¹ Nero entered upon his first Tribunate on Oct. 13, 54, and renewed it on the same day in five subsequent years. Thus **TR. P. II** would extend from Oct. 13, 55, to Oct. 12, 56, and so on regularly until **TR. P. VI** on

¹¹ Cf. Henderson's *Nero*, p. 449.

Oct. 13, 59. At this point we meet with a difficulty; the acts of the *Fratres Arvales* record the sacrifice for Nero's *Tribunicia potestas* on Dec. 4, and, while they give the date Jan. 3, 59, as **TR. P. V**, they are equally clear in giving Jan. 1, 60, as **TR. P. VII**. That is to say, Nero changed the date of his Tribunate from Oct. 13 to either Dec. 4 or 10—the latter being the usual date—and consequently shortened his VIth Tribunate to the period Oct. 13 to Dec. 4 (or 10), A.D. 59, and entered on **TR. P. VII** in Dec. 59. On Jan. 1, A.D. 60, he received his fourth Consulship, therefore **TR. P. VII** and **COS. IIII** should fall together. The coins, however, place **COS. IIII** in the VIth Tribunate; consequently we find in this year two different modes of reckoning the Tribunician date, i.e. the one shown on the coins, and the other as appears from ancient records.

The coins, moreover, appear to continue the older reckoning until the time of the currency reform, after which they are readjusted to suit the authorized system—although as a matter of fact the discrepancy signified little between the years 61 and 63. It has already been pointed out that the only dates which occur on the coins of Period II are **TR. P. XII, XIII**, and **XIIII**, and, as the readjustment of the date necessitated the shortening of one of the Tribunician years, we may reasonably assume that it took place in what was nominally **TR. P. XI** (i.e. Oct. 13 to Dec. 4 or 10, A.D. 64) since this date is omitted from the coins.¹²

¹² Hobler, Cohen, and others describe coins on which the date **TR. P. XII** occurs; the only one I have been able to examine, however, is a Sestertius in the British Museum, with the reverse

The following table will help to make the point clear:

Actual and coin dates in agreement **TR. P. I-V.**

TR. P.	I.	Oct. 54 to Oct. 55.
	II.	Oct. 55 to Oct. 56.
	III.	Oct. 56 to Oct. 57.
	IIII.	Oct. 57 to Oct. 58.
	V.	Oct. 58 to Oct. 59.

Discrepancy between actual and coin dates
TR. P. VI-XI.

	<i>Actual Dates.</i>	<i>Coin-Dates.</i>
TR. P. VI.	Oct. 59 to Dec. 59.	Oct. 59 to Oct. 60.
VII.	Dec. 59 to Dec. 60.	Oct. 60 to Oct. 61.
VIII.	Dec. 60 to Dec. 61.	Oct. 61 to Oct. 62.
VIIII.	Dec. 61 to Dec. 62.	Oct. 62 to Oct. 63.
X.	Dec. 62 to Dec. 63.	Oct. 63 to Oct. 64.
[XI.]	Dec. 63 to Dec. 64.	Oct. 64 to Dec. 64.

Actual and coin dates in agreement **TR. P. XII-XV.**

TR. P.	XII.	Dec. 64 to Dec. 65.
	XIII.	Dec. 65 to Dec. 66.
	XIIII.	Dec. 66 to Dec. 67.
	XV.	Dec. 67 to June 68.

type of the Temple of Janus and the obverse legend **NERO CAESAR AVG IMP TR POT XI P I P** [Pl. II. 10]. Are we to regard this remarkable form of date as an engraver's blunder, or has it a special significance? If, as seems probable, the "Temple of Janus" coins were issued on January 1, A. D. 65, this would fall, according to the older method adopted by the coins, under **TR P XI**, but according to the revised system under **TR P XII**. We have suggested above that the change in the system of dating the coins took place in the *nominal* **TR P XI**, shortened to suit the authorized reckoning. Thus this particular date would have an ambiguous meaning. We may, I think, conceive that, in this instance, the coin engraver has made a compromise to suggest **TR P XI**, according to the older reckoning, or **TR P XII**, according to the newer. It will be remembered that a somewhat parallel example of this double form of date occurs frequently in the seventeenth century; as, for instance, January 1 to March 25, 164½ = 1647 (old style) or 1648 (new style).

The last point I propose to touch upon in this paper is the attribution of certain coins to the mint of Lugdunum. This was the only mint outside Rome which, during the reign of Nero, appears to have exercised the privilege of issuing both Imperial and Senatorial coins. Before discussing the characteristics of the coins which may be assigned to the famous Gallic mint, it will be worth while to examine the theory, propounded originally by M. Mowat,¹² and apparently still maintained by some numismatists, that the small globe pendent from the lower extremity of the bust is the mint-mark of Lugdunum.

M. Mowat is very emphatic in the enunciation of the theory, and bases his arguments mainly on two groups of Galba's coins. First, the denarii with the legend **TRES GALLIAE** and the three small heads personifying the three Gallic provinces, each with the globe pendent. His reason is that Lugdunum was the capital of the Three Gauls, hence the most appropriate place for the issue of this type. Secondly, the series which record the remission of a tax known as *Quadragesima*, the legends being **QVADRACENS** or **QVADRACENSUMA REMISSA**, and the globe occurs on the obverse. This tax M. Mowat assumes to be the *Quadragesima Galliarum*, or Gallic Customs Duty, thereby establishing a further connexion between Gaul and the symbol of the globe.

Now these examples, cited by way of proof, happen to be somewhat unfortunate. The style of the **TRES GALLIAE** coin is quite unlike that of any coins which may unquestionably be assigned to Lugdunum, and at

¹² *Rev. Num.*, 1895, pp. 160 ff.

the particular period to which the coin belongs Lugdunum was issuing a totally different series, consequently it is quite impossible to find any place in this mint for the **TRES GALLIAE** type.

In the second instance, to identify the tax mentioned as *Quadragesima* with the *Quadragesima Galliarum* is wholly without foundation; and it is impossible to discover any sort of connexion between the remission of a customs duty and the type which accompanies the legend **QVADRACENSUMA REMISSA**, namely, an arch-like structure under which prisoners and other persons are passing. Moreover, the style of many coins which refer to the rescinding of this tax indicates clearly that they are of Roman mintage.

We need not follow M. Mowat in detail through his further elaboration of the theory, wherein he connects the establishment of a Senatorial mint at Lugdunum with Nero's munificence after the great fire and subsequent rebuilding of the city. He concludes, "the mint of Lyon, raised to the position of auxiliary to the mint of Rome, lost the right of perpetuating on the bronze the representation of the celebrated altar of the Three Gauls—the last symbol of its vanished autonomy."

The briefest possible comment will suffice. M. Mowat places the fire of Lugdunum in the year A.D. 58—misled by a statement of Seneca—whereas Tacitus¹⁴ makes it clear that it happened in A.D. 65. Nero's munificence appears to have had nothing to do with the readjusting of the mint, but was merely to hand back to the citizens of Lugdunum the sum of four

¹⁴ Tac. *Ann.* xvi. 13.

million sesterces which they had contributed in the previous year towards the rebuilding of Rome. The year 65 is too late to fix the establishment of a Senatorial mint, since it is evident from the coins that copper and probably brass were issued several years earlier at Lugdunum. The reference to the *Altar of Lyon* type (**ROM ET AVG**, without **S. C**) refutes itself. There appears to be only one known example of this coin, and on the obverse the radiate head of Nero occurs *with* the globe. We must conclude, therefore, either that this coin (without **S. C**) belongs to the older mint of Lugdunum, in which case the *globe* occurs previous to the establishment of the Senatorial mint; or, if the globe is to be regarded as the distinctive symbol of the Senatorial mint, the right of using the *Altar of Lyon* type was not forfeited.

Perhaps the most conclusive evidence against the theory of identifying the *globe* with Lugdunum is found in the following considerations:

(1) The *globe* occurs in conjunction with every known reverse type of Nero's brass and copper coins, and, since certain types appear to be *peculiar* to Lugdunum, it would necessarily involve the supposition that, during the reign of Nero, a greater number of types was issued at Lugdunum than at Rome itself.

(2) The style of a number of coins with the globe is unquestionably characteristic of the Roman mint,¹⁵ and during the reign of Galba the globe occurs frequently on coins which must be assigned to Spain.

The attribution of Nero's coins to the mints of Rome and Lugdunum is mainly to be determined from considerations of style. The style and general treatment

¹⁵ Cf. PL II. 11.

of Nero's portrait, as found on the brass and copper coins, will be seen to fall into two distinct classes.

First, there is the portrait remarkable for its bold treatment and high relief. The outline of the head usually rises sharply from the field, and the hair is arranged in close, irregular curls. This style of portrait unquestionably belongs to the Roman mint, and occurs principally on the *brass* coins. On the *Sestertii* the head is always laureated, and at the lower part of the neck are found, on many specimens, the small *aegis*, or less frequently the globe. On the *Dupondii* and *Asses* Nero is generally represented wearing the radiate crown. [See *Pl. II.* 11, 2, and 4].

Secondly, there is the portrait of much flatter and more outspread style. The features are less sharply defined, the lower part of the chin is heavily developed, and the arrangement of the hair is less compact than on the coins just mentioned. [See *Pl. II.* 3, 8, and 12.] A further peculiarity may often be noticed in the method of finishing the lower line of the bust with sharp curves. This style I consider to be characteristic of *Lugdunum*, and it is found mainly on the copper *Asses* and *Semisses*, where the Emperor is represented bare-headed. There are also certain *Sestertii* and *Dupondii* with this style of portrait, the latter being generally characterized by the laurel instead of the radiate crown.

The *globe*, but never the *aegis*, occurs with this style of portrait.

It will be seen that these two classes do not entirely exhaust all the variations of style found on Nero's brass and copper coins. For example, those which must probably be regarded as Imperial coins (without

S. C) frequently exhibit peculiarities of style not found on the Senatorial coins.¹⁶ But so far as most of Nero's brass and copper coins are concerned these two classes will be found to include practically all that belong to the Senatorial mints of Rome and Lugdunum.

Corresponding with these two styles of portraiture are found certain variations in the form of obverse legend.

Thus style i (the portrait in high relief) is found with

NERO CLAVD (or CLAVDIVS) CAESAR AVG
GER (or GERM) PM TR P IMP P P.

while style ii (the flatter portrait) occurs in conjunction with

IMP NERO CAESAR AVG P (PONT or PONTIF)
MAX TR POT (or TRIB POT) PP; IMP
NERO CAESAR AVG GERM; and NERO
CLAVD CAESAR AVG GERMANICVS
(GERMA or GERM).

We may in all probability therefore assign the first legend to Rome and the others mostly to Lugdunum.

A further point of difference may be observed in the style of striking. The slightly concave form of reverse seems to be peculiar to the coins of the Roman mint, whereas those of Lugdunum are *generally* flat.

The two small symbols to which we have already referred, viz. the *globe* and the *aegis*, appear to possess a significance quite irrespective of their place of mintage.

The *globe* naturally symbolizes the idea of world-wide dominion; and the portrait of the Emperor placed above the globe implies that he occupies the supreme

¹⁶ Cf. Pl. II. 1.

position as controller of the world. That is to say, it is equivalent to regarding the Emperor himself as being of the nature of a divinity. We may suppose, therefore, that the symbol of the globe was intended to emphasize the divine aspect of the Imperial office, but was introduced in a sufficiently unobtrusive way so as not to offend the susceptibilities of the more old-fashioned Romans. Augustus, on whose coins the globe first occurs, was careful to allow no worship of himself apart from that of Roma, while there is no doubt that he regarded the divine character of the Emperor as an essential factor of the Imperial theory. Nero, the last of the Julio-Claudian dynasty, showed less reserve in his acceptance of divine honours; hence the frequency with which the globe appears on his coins.

The *aegis* is an emblem associated with Jupiter and Minerva. The adoption of the *aegis* by the Emperor therefore implies the assumption of a divine attribute. Thus we may regard the symbolism of the globe and *aegis* as practically identical, inasmuch as both emphasize the divinity of the Emperor.

E. A. SYDENHAM.

III.

THE DECLINE AND FALL OF THE DENARIUS IN THE THIRD CENTURY A.D.

(SEE PLATE III.)

IN the seventeenth year of his tribunicial power [A. D. 214] the emperor Caracalla made two changes of no small importance in the Roman coinage, whose multiples and fractions had remained practically unaltered since the time of Nero. These two changes are obviously connected with each other. The first was that he commenced to strike a silver coin of a larger denomination than the time-honoured denarius, and one which was destined to drive the old silver unit of calculation out of the currency before fifty years had expired. This new coin has been called by most modern numismatists the *Antoninianus*,¹ a name which has no real authority, for it is only found in some of the forged rescripts and letters which certain misguided historians of the fourth century inserted in the "Augustan History". But Mommsen adopted the name for the new coin of Caracalla, and his successors

¹ The word occurs in a rescript of Aurelian of most doubtful character in the *Historiæ Augustæ Scriptores* (Vita Bonosi 15) and was identified by Mommsen with another coin, the *argenteus Aurelianus* mentioned in a letter in Vita Probi 4. The fictitious nature of these documents and the general unreliability of the *H. S. A.* for numismatic topics is well exposed in Menadier's *Das Münzwesen bei den Scriptores Historiæ Augustæ*, Berlin, 1913.

have unfortunately followed him. As a matter of fact, the name of the new denomination is uncertain.

This piece is easily distinguishable from the denarius not only by its greater size, but by the fact that the emperor's head upon it is always adorned with a radiate crown, of simple spikes set in a narrow circlet. This crown was already familiar on the coinage, having been frequently placed on the bronze dupondii of emperors of the first and second centuries; it was also common on the silver and bronze of Alexandria and other provincial mints. But, on the denarius, emperors had always been wont to wear the laurel wreath, except when they showed no head-gear of any sort at all. The majority of Augustus's issues, a great part of Hadrian's denarii, and many of those of Antoninus Pius had displayed the plain bare head; and Caesars and other junior members of the imperial house had also worn no wreath. Still the laurelled head was by far the most common type on all denarii for the last two centuries. Onward from A.D. 214, the portrait on the denarius retained the laurel crown, except in the case of certain Caesars, who remained bare-headed on this size of coin till their promotion to the rank of Augustus (as did *e.g.* Alexander Severus and Gordian III), or till their death without obtaining the higher title (*e.g.* Maximus, son of Maximinus I).²

As regard the wives and mothers of emperors, the difference between the denarius and the new coin could not be expressed by means of a diversity of headgear, since the Augustae did not wear laurel

² The only exception to this rule is that Diadumenianus, the son of Macrinus, shows the radiate crown on his large-size pieces, though he was never raised to the rank of Augustus.

crowns. But it was adequately managed by introducing the rule that on the new denomination the empress's bust always emerges from a long-horned crescent, while on the denarius there is no such addition, and the bust continues to resemble that of the ladies of the earlier empire, showing simple drapery at the neck.

The average weight of the denarius under Severus and in Caracalla's earlier years had been about 54 grs.³ That of the new large coin started at about 80 grs.⁴, apparently pointing to a standard of 64 pieces struck from the pound of silver, while the denarius since Nero's time had been theoretically issued at 96 to the pound. It would seem that the new coin was intended to circulate at the rate of $1\frac{1}{2}$ denarii, since a 54 gr. denarius would give 81 grs. as the proper weight of its one-and-a-half multiple, and some of the larger pieces do weigh as much as this, though the majority fall a little below it. It was not intended to *supersede* the old coin entirely, for there are plenty of denarii bearing the dates of Caracalla's seventeenth, eighteenth, nineteenth, and twentieth tribunicial years. Clearly, then, the two denominations were intended to circulate together, and in some fixed relation to each other, and this can hardly have been any other relation than that of one to one-and-a-half. There have been authors who allege that the new piece was to pass as a *double* denarius. But it is incredible that even a tyrant like

³ Fifteen very fine denarii of Severus and of Caracalla as Caesar weigh 813 grs., *i.e.* 54.2 on the average.

⁴ Four very fine pieces of Caracalla's new coinage weigh 313 grs., or an average of 78.3. Babelon, *Traité*, i. 560, gives the highest known weight of the new coin as 5.31 grammes = 82 grains.

Caracalla could have contemplated the foisting of such an obvious fraud on the public. If it had been tried, the only result would have been the immediate disappearance of all denarii from circulation, since every holder would have hastened to melt them down and use them as bullion. He would have had 108 grs. of the metal in his hand by melting two denarii, instead of the 80 of the new coin. And it cannot be urged that, both being rather base silver, the government could rely on a general knowledge of the fact, and persuade the public that it was the stamp and the emperor's edict that made the only real value, not the actual weight of the pieces. For the coins had still enough silver in them—some 55 per cent. or a little more—to prevent the actual value of the metal from being a negligible quantity. If aiming at a gigantic fraud on the scale suggested by the believers in the "double-denarius", Caracalla need only have debased his metal. But this he did not do: the quality of the two coins is the same. It was only in the course of long years that the purity of the silver of the Roman coinage finally sank to the miserable 0·2 or 0·155 that is to be found in the last issues of the bankrupt Gallienus.

There can be no serious doubt that for economic reasons the new coin must have been intended to circulate for what it actually was, a piece of one-and-a-half denarii. What was the object of issuing a new denomination in silver bearing this rather awkward relation to the old universally current denarius?

The only reasonable explanation that occurs to me is, that the introduction of the new piece must be put into close connexion with the other great monetary

change of Caracalla's seventeenth tribunical year. This was *not*, as Mommsen and many more following him have asserted, a general reduction of the weight of the current gold unit, the aureus, from 112 to 100 grs. No such general reduction took place. Light aurei ranging down to 100 grs. do indeed appear in some quantity struck in the last four years of Caracalla, but with them, and bearing the same dates, are many others still weighing the full 112 grs. of the old standard, and still more varying from 109 to 102 grs. This would have been objectless waste of gold, if Caracalla had contemplated reducing the gold standard unit to 100 grs., since he would have been depleting his finances appreciably by every single coin weighing over 100 grs. that he issued. And that the old standard was not officially disused is shown by the fact that not only do *all* the rare aurei of his successor Macrinus weigh from 110 to 112 grs., but also many of those of Elagabalus. Of weighed aurei of that emperor I note three recorded coming up to 112 grs. full (two with *rec. FIDES MILITVM*, one with **PONTIF MAX TR P.**: type Rome seated), two up to 110 grs. (both **VICTORIA ANTONINI AVG**), one of 109 (again **FIDES MILITVM**), while one British Museum specimen rises to the wholly unnecessary and ostentatious weight of 114 grs. It is true that there are more aurei of Elagabalus running down to lower weights—100, 98, even 96 grs. But if a 100 gr. standard had been regularly introduced by Caracalla, we should not get the numerous aurei weighing a great deal more than 100 grains which are forthcoming from him and his immediate successors.

Caracalla did *not* introduce a new gold standard.

What he did in A.D. 214 was something quite different. A moment's reflection shows why he was able to begin issuing aurei of erratic weight without upsetting the whole currency of the empire. He recognized that the aureus was now getting so scarce that it had ceased to be readily interchangeable for silver, and had become valuable bullion, to be issued and received by weight only and not by tale. It is a matter of general knowledge that in the fourth century gold was calculated by the pound weight, and not by the number of pieces. Payments were made in so many pounds of gold, not in so many *solidi*. Now if we extend this usage back to the third century, a flood of light is thrown upon the question. It does not matter in the least how many grains of gold there are in the individual aureus, if that piece is only taken and given by weight. Whether the seller of any commodity receives four light or three heavy aurei does not concern him, if he gets the due weight of gold. True, he must always be using the scales, but that was familiar to the ancient world, just as it was to our own ancestors in the eighteenth century, who were always poisoning light guineas in the neat little pocket-scales of which so many survive, or to the Chinese of to-day, who readily receive gold as a currency in an uncoined shape, by mere weighing on every transaction.

Why should this crisis have come in the time of Caracalla? Simply because the gold coinage was passing out of use, owing to the scant issues of the last forty years. After the reign of Marcus Aurelius the aureus had ceased to be struck in such immense quantities as had been issued from the Roman mint.

from the time of Nero downwards. As every coin-collector knows, aurei of Commodus are scarce, those of Severus and his wife and family rather scarcer, while from the accession of Maximinus onward they are of the very highest rarity. The easiest way of expressing their relative scarcity is perhaps to quote the scale of prices in Cohen-Feuwardent, bearing in mind that it is only relative rarity that is expressed, not actual market value. For the sums fixed in that Bible of the Roman Numismatist are obviously far too low for these days. But taking its scale, an aureus of a common type of Trajan, Hadrian, Antoninus Pius, or Marcus Aurelius is valued at only 40 francs, those of Commodus at 130, of Severus, Caracalla, and Julia Domna at 150. Now Commodus reigned thirteen years, Severus eighteen, Caracalla (as his father's partner and then in his own sole right) for nineteen. The rarity of their aurei, therefore, does not result from the shortness of their reigns—as would the rarity of those of *e.g.* Balbinus, Aemilian, or Volusian. If they had been issuing gold freely, it would be as accessible to-day as are aurei of Nero and Trajan. The simple fact stands out that since the disasters that marked the later years of Marcus Aurelius—the great plague, the earthquakes, the first barbarian inroads into Italy—the empire was growing rapidly poorer, and the mint had ceased to coin gold with any freedom. The aurei of Commodus, Severus, and Caracalla are much more “medallic” than those of their predecessors—they represent more the necessary imperial largesses and the commemoration of great occasions than do those of the earlier periods. As every collector knows, a very remarkable proportion of

them are found in mint condition, and have obviously never been in general circulation. A worn Trajan or Hadrian is a common object—a worn Caracalla is a rarity. It is clear that the aurei were hoarded the moment that they were issued.

Contemporary with this obvious stopping off of the free issue of aurei, we have the immense over-issue of denarii, which under Commodus, and still more under Severus, are alloyed with base metal far more than those of the earlier Antonine period. By Caracalla's time this "silver" was only 0.55 or at the most 0.6 pure. For the practical purposes of life the debased denarius was driving out the aureus in all transactions. It is clear that as fast as the meagre supply of gold was issued from the mint, it was hoarded or melted down. While the aureus was still officially rated at 25 denarii,⁵ it must really have commanded an agio, as does the seldom-seen gold coinage of Spain or Italy to-day.

Caracalla, unless I am mistaken, recognized this fact and abandoned as hopeless the attempt to keep up the circulation of the aureus of 112 grs., interchangeable with 25 base-silver denarii of 54 grs.; *i. e.* he saw that the relation of gold to base silver was not really one to twelve, that the public had realized the fact, and that any further attempt to maintain such a theoretical rate of exchange was hopeless. He commenced to issue a certain amount of gold pieces of irregular weights, but only for what they were worth, not as multiples of the denarius. What they actually passed for would depend on the weight of each piece tested by the

⁵ See Hultsch, *Metrologie*, 2, p. 308.

scales, and this weight varied from 100 grs. up to the old 112. The object of issuing any such pieces at all was no doubt that the imperial donatives and liberalities, which were wont to be given in gold, might still continue.

The unit of calculation in imperial, as in republican Rome, was still the sesterce, now represented by the "First Brass". Taxes or bargains in the market had never been officially stated in aurei—though they must have been beginning to be stated in A.D. 214 in pounds of gold, as they certainly were in the fourth century. The denarius, no doubt, still continued to stand for four sesterces. The new larger coin of 80 grs. must have circulated for six. How either of them interchanged with an aureus would depend on the weight of the aureus—which now varied so much that a 112 gr. piece must have been worth at least four denarii more than a new 100 gr. one.

My own guess would be that the new 80 gr. silver piece was intended to fit into the scale of the lightest of the new aurei, at the old rate of exchange of 25 pieces to one; *i.e.* of 25 "Antoniniani" (to use the familiar if incorrect name) or 2,000 grains of base silver to 100 grs. of gold, or twenty grains to one. For the grain of base silver was clearly not of the same value as the grain of comparatively pure silver that had formed the denarii of Nero and Trajan. Taking the highest assay of the coins of Caracalla at 0.6 pure silver to 0.4 alloy—which is not far from correct, though 0.55 is the average—the 2,000 grains of base metal in 25 of the new large coins would represent 1,200 grs. of pure silver. That is to say, the old exchange rate of one grain of gold to twelve of real silver would be

restored, it being of no consequence that eight parts of alloy were mixed with the twelve of pure metal in the new 'silver' coin.

The main convenience of the "Antoninianus" would be that it would exchange fairly with one of the new 100 gr. aurei at a reasonable rate. But Elagabalus, before he had been long on the throne, began striking some of his aurei much below the 100 grs. which had been Caracalla's minimum. The moment that aurei of 96 or 98 grs. began to appear in numbers, the convenient relation of one to twenty between the base-silver and the lighter gold ceased to exist. Hence Elagabalus ere long dropped striking the new large base-silver coin, and Alexander Severus and his successor Maximinus issued none at all. This was all the more natural because Alexander lowered the weight of his smallest aurei to much less than the lightest of those of his cousin. Many weigh only 94 or even 92 grs. For nearly twenty years the denarius was once more the only base-silver coin which continued to be struck. It must have exchanged against aurei purely on a rate settled by the scales, since the gold pieces were being struck, when they were struck at all, of most irregular and diverse weights.

Now comes the main problem. Why in A. D. 238 did Balbinus and Pupienus begin to reissue the defunct "Antoninianus" in considerable bulk, and why did the ministers of Gordian III, in about A. D. 242, make it the common coin of the realm, and allow the denarius to die out, for all intents and purposes? The answer, I take it, must be that for the last few years the striking of aurei had ceased altogether, save on the most limited scale and for purely ceremonial and

donative purposes. There is much less gold visible from Alexander Severus's later period than from his earlier times: his successor Maximinus I, though he reigned three full years, seems hardly to have struck any aurei at all—they are so rare that Cohen-Fenardent values them at 600 francs apiece or more. Short as was the joint reign of Balbinus and Pupienus, their aurei are even rarer than might have been expected—of Balbinus none were known to Cohen, though two specimens (as I believe) turned up in recent years from an Egyptian find. Of Pupienus the only known type is valued at 3,000 francs. Yet these short-lived emperors issued a very considerable bulk of the resuscitated "Antoniniani", along with a somewhat smaller quantity of denarii. We learn from the historians that they disbursed a good deal of money.⁶ Certainly it cannot have been in gold; presumably, then, it must have been in silver. But why in "Antoniniani"?

The only reason that I can suggest is that lavish expenditure being necessary in their short if strenuous reign, and gold not being forthcoming for the campaign against Maximinus I, they rushed out a large quantity of "Antoniniani", because these were the largest known coin of the realm, save the practically defunct aureus. Large and hasty payments having to be made, it was easier to coin a fixed amount of base-silver into a smaller number of large rather than into a larger number of small pieces. Time, trouble, and labour would be saved by coining a lump of billon into 1,000 of the larger rather than into 1,500 of the lighter coins.

⁶ See *Vitæ Maximi et Balbini* 12, in *Historia Augusta*.

The colleague and successor of Balbinus and Pupienus, the young and unlucky Gordian III, issued, like the two old emperors, both denarii and "Antoniniani". His rare early pieces, with the title of Caesar only, appear to be all denarii, and, for the first two or three years of the six for which he reigned, there are plenty of the smaller coins forthcoming. But from his fourth year onward these disappeared: of his dated silver coins of his fourth, fifth, and sixth tribunicial years *all* are of the large size, and show him wearing the radiated crown. And the same would appear to be the case with his undated coins—if his mint had been turning out denarii still in his later years, we should have found a good many of them struck in the early months after his death and Philip's accession. But as a matter of fact, denarii of Philip are of the very highest rarity. There are only two types of them known,⁷ and they are among the hardest Roman coins to procure. Of his wife Otacilia two types only of the denarius are also known,⁸ while of his son Philip II there is only one.⁹

The denarius, as a practically circulating coin, was therefore (as I imagine) killed by the fact that free gold issues had ceased, and that some larger unit of payment for small transactions was convenient. The relation of the denarius to the "Antoninianus" was rather inconvenient, it was neither a half nor a third

⁷ **SECVRITAS ORBIS** (Cohen No. 214) and **ADVENTVS AVG.** (Cohen No. 5), the former illustrated in **PL III. 1.**

⁸ **CONCORDIA** (Cohen No. 3) and **PVDICITIA** (Cohen No. 52). The former illustrated in **PL III. 2.**

⁹ **PRINCIPIVM IVVENT** (Cohen No. 53) illustrated in **PL III. 3.**

of the new coin, but a two-thirds. Hence it was dropped as inconvenient.

Why a very few denarii continued to be struck after Gordian III had dropped their issue in mass, it is not easy to see. Possibly the mint-masters continued to cause a few specimens to be struck out of mere routine, for some ceremony corresponding to our own "Trial of the Pyx". Possibly they were wanted, like our own Maundy money, for some donative or function, at which the archaic denomination had been distributed from time immemorial. But it is certain that denarii continued to be issued, though in infinitesimal quantities, right down to the time of Gallienus and his rival the Gaulish usurper Postumus. They only ceased to appear when the billon followed the good silver into oblivion, in the utter bankruptcy of the state. There are denarii both of Valerian and of Gallienus, though none apparently of Trajan Decius and Trebonianus Gallus and their families. Their metal is as wretched as that of the "Antoniniani", from which they are distinguished only by their smaller size, and the laurel-wreath which still encircles the emperor's head, instead of the radiate crown. Their rarity is their only merit—a collector may spend years on end without coming across a denarius of Philip or Valerian in a sale-catalogue or a dealer's cabinet.

It seems, indeed, that the character of the imperial image on the coin, and not its weight, was the sole thing that mattered in these last days of the life of the old silver coin. If the piece had a laurelled head (or a bare head in the case of a Caesar), it was a denarius; if a radiated head, it was an "Antoninianus". And so much was this the case that while as a rule the denarius

was much smaller than the "Antoninianns", it was not always so. Of three denarii of Valerian which I have weighed, one turns the scale at 26.7 grs. (Pl. III. 8), one at 32.4 grs., but the third (of the same type, IOVI CONSERVATORI, as the one before it in the list¹⁰) weighs up to 52 grs., which is as much as that of many contemporary "Antoniniani"!¹¹ This can certainly not be considered a double denarius, yet it has just twice the number of grains as the smaller of the other two laurel-wreathed pieces of Valerian! Yet it must undoubtedly have circulated as a piece of the same denomination as the lesser coin. There is a similar, if not so marked, difference between the weights of two denarii of absolutely contemporary issue in the British Museum. They belong to two colleagues—Philip I and his son Philip II, and are both in splendid condition, yet the younger Philip's coin weighs 41.4 grs., his father's only 30.4. Clearly the mint-master made no attempt to keep to a rigid rule, and to send back to the melting-pot coins that were much too heavy or much too light. The light coin would pass because of the image upon it—in the case of the heavy one the loss to the treasury owing to over-weight would be negligible because of the baseness of the metal. No doubt all that was insisted upon was that a pound of billon should be coined into a fixed number of denarii or "Antoniniani". Some might be too large, some too small, but that

¹⁰ This coin is in my own collection.

¹¹ Two "Antoniniani" of Valerian's ephemeral predecessor Aemilian, in very fine state, weigh 45 and 49 grs., much less than this denarius. A good, well-struck "Antoninianus" of Valerian's wife Mariniana weighs 48 grs. Most of the earliest "Antoniniani" of Gallienus are over 52 grs., but by the time he had been on the throne a few years they had gone down to an average of 47 grs.

would not matter if the whole batch together made up the right weight. The obvious deduction would seem to be that all large payments must have been made by weight, not by tale: otherwise, tax-payers would have carefully searched for the small and light coins to pay their debts, and have spoilt the general result by putting by for profit the heavy ones. Wild carelessness had its fullest fling in the troubled time of Gallienus. For a specimen of Gallienus's untidy and ill-struck denarii, see the type **FORTVNA REDVX** (Pl. III. 8). Excluding absolutely base tin-washed coins of his latest years, and weighing only true billon ones, I found that his heaviest "Antoninianus" came to 70 grs., the lightest to only 43! Clearly, the mint-master had ceased to take any care of the amount of the almost absolutely valueless metal that was melted up into any particular coin. The emperor's stamp would make it pass, whatever its precise weight. But of course there was a nemesis for this: the purchasing value of the wretched billon "Antoniniani" dwindled away to next to nothing.

Contemporary with the last billon denarii coined by Gallienus, there are some notable billon coins, apparently denarii also, of his rival the usurper Postumus, who tore away from him Gaul, Spain, and Britain, and held them as a separate "Imperium Galliarum" from his revolt in A.D. 259 till his death in 267: it will be remembered that Gallienus survived him by a year, as he was murdered in 268. The usurper copied all the current sizes of the coins of the legitimate emperor, including the bronze sesterlius and dupondius, so that it is not surprising to find that he issued denarii, scarce as these had become by his time; but

it is odd that he struck more than his rival. There seem to be more than twenty known types of Postumus to seven or eight of Gallienus. The peculiarity of the denarii of Postumus is that the majority of them belong to a series with a very special sort of obverse, where the laureated head of the usurping emperor is joined side by side with that of Hercules, his special patron among the gods. The reverses of the main series each represent one of the Labours of Hercules: there are to be found—

- (1) **HERCVLI ARCIVO**, with Hercules killing the hydra. Pl. III. 16.
- (2) **HERCVLI ERYMANTINO**, with Hercules carrying the Erymanthine bear on his shoulders. Pl. III. 17.
- (3) **HERCVLI INVICTO**, with Hercules stripping off the girdle of the Queen of the Amazons. Pl. III. 19.
- (4) **HERCVLI NEMAEO**, with Hercules strangling the Nemean lion. Pl. III. 18.
- (5) **HERCVLI ROMANO**, with Hercules gathering the golden apple of the Hesperides—three nymphs draw back from the tree.

All these five Labours are found on coins in the British Museum. The Paris Collection supplies five other Labours, viz. (I illustrate the second of them from a very fine specimen in Sir Arthur Evans's cabinet):

- (6) **HERCVLI ARCADIO**, Hercules capturing the Ceryneian stag.
- (7) **HERCVLI CADITANO**, Hercules fighting with the Monster Geryon. Pl. III. 20.
- (8) **HERCVLI INMORTALI**, Hercules dragging along the Dog Cerberus.
- (9) **HERCVLI PISAEO**, Hercules clearing the stables of Augeas.
- (10) **HERCVLI THRACIO**, Hercules taming the horses of Diomedes.

The types which would complete the set of the twelve Labours of the god are not known in billon, but as they are found in gold there can be little doubt that they were issued in the baser metal also, though no specimens are now known. They are:

- (11) **HERCVLI CRETENSI**, Hercules pulling down the Dictæan bull.
- (12) **HERCVLI LIBYCO**, Hercules strangling the giant Antæus.

This forms an extraordinary and unparalleled set of denarii: they run rather heavy in weight compared with the contemporary pieces of Gallienus: the heaviest of those in the British Museum rises to 51 grs. (**HERCVLI ROMANO**), the lightest (**HERCVLI NEMAEO**) falls to 32. Of the contemporary denarii of Gallienus the heaviest weighs only 40·4 grs. and the majority lie between 35 and 25 grs.

In addition to the set of denarii with the Labours of Hercules, Postumus struck a few more, still recalling that same god, with his head on the obverse alongside of the emperor's own: these are of the types—

- (13) *Obv.*—The two heads. *Rev.*—**CASTOR**. One of the Dioscuri holding his horse by the rein.
- (14) *Obv.*—The two heads. *Rev.*—**CLARITAS AVG.** Busts of the sun and moon, side by side.
- (15) *Obv.*—The two heads. *Rev.*—**CONSERVATORES AVG.** Busts of Mars and Victory.
- (16) *Obv.*—The two heads. *Rev.*—**CONSERVATORES AVG.** Busts of Apollo and Diana.
- (17) *Obv.*—The two heads. *Rev.*—**FELICITAS TEMP.** Galley with four rowers.
- (18) *Obv.*—The two heads. *Rev.*—**HERCVLI DEVSONI-ENSI**. Standing figure of Hercules. **PL. III.**
15.

- (19) *Obv.*—The two heads. *Rev.*—**HILARITAS AVG.** Joy standing between two children holding palms.
- (20) *Obv.*—The two heads. *Rev.*—**PAX AVG.** Peace, standing, with olive branch and sceptre.
- (21) *Obv.*—The two heads. *Rev.*—**P.M. TR.P. COS. P.P.** Lion holding a fulmen in his mouth.
- (22) *Obv.*—The two heads. *Rev.*—**POSTVMVS AV-
GVSTVS,** Bust of Postumus with the attributes of Hercules, club and lion's skin.

Lastly, to complete the denarii of Postumus we must add two more, which have no reference to Hercules upon them, viz.

- (23) *Obv.*—Laureated head of the Emperor. *Rev.*—**INVICTO
AVG.** The same head radiate.
- (24) *Obv.*—Laureated head of the Emperor. *Rev.*—**PROVI-
DENTIA AVG.** Providence standing, with globe and cornucopiae.

But for the existence of these two last-named coins, on which no reference to the god Hercules appears, we should have been inclined to suppose that all the denarii of Postumus had been struck at one and the same time, at some period in his earlier years when he was celebrating some feast or dedication in honour of his patron deity. The obverse type of the two heads is uniform on the whole series, and is executed in a far better style of art than was common at the time. Indeed it appears that the set of denarii with the Labours of Hercules and the other subjects was issued along with a corresponding set of aurei of excellent design with the two juxtaposed heads, which reproduce in exactly the same fashion several of the reverse-types found on the billon,¹² with one or two

¹² Aurei are found with the types numbered above among the denarii of the following—Nos. 4, 10, 13, 14, 15, 16, 20.

more in addition which obviously belong to the same issue,¹³ and probably had billon parallels which may yet come to light in some future excavation. Why this commemorative issue should have been composed mainly of aurei and denarii, the usual "Antoninianus" not appearing for most of the types, it is impossible to say. Perhaps Postumus contemplated at the moment the restoration of the denarius as the ordinary silver currency of his realm, to the detriment of the disreputable "Antoninianus". If so, he did not carry out the scheme: this issue with the Hercules types is an almost isolated phenomenon in the currency of the "Imperium Galliarum".

Indeed for all intents and purposes it may be said that the Hercules-issue of Postumus forms the last important output of imperial denarii. These types are so curious and interesting, and their art is so good for the period, that it may fairly be said that the original Roman silver unit, despite of its sad deterioration in purity of metal, at least expired in a blaze of mythological and artistic glory. The miserable "Antoninianus" had a much more ignominious end, not coming to a sharp stop like the denarius, but trailing out its last years of existence as mere copper, with no trace of its original self save the radiate crown on the obverse, which still continued to adorn the heads of the short-lived emperors of the later third century.

So much for the end of the ancient Roman denarius. It remains to speak of the exactly similar fate of the other old silver denomination which dated back to

¹³ Viz. the aurei with **HERCVLI CRETENSIS** and **HERCVLI LIBYCO** which complete the series of the Labours, and are numbered as 11 and 12 in the list above.

the Republic of the third century B.C., the quinarius, the half of the denarius. This was never a popular denomination from Augustus onward, but nearly all the emperors of the first and second centuries continued to strike it on a very modest scale. Probably it was inconvenient from its small size, and change was generally given in sestertii, or "first brass", rather than in quinarii, when a denarius was passed over the counter for some small purchase. Its life must have been much like that of our own "threepenny bit"—rather avoided than welcomed by the receiver of change. The only emperors of whom quinarii are moderately common are Augustus, Nero, Vespasian, Titus, Domitian, Trajan, and Hadrian,¹⁴ and of any of these sovereigns one runs across fifty denarii before coming on a single specimen of the smaller silver coin. With the death of Hadrian their issue became still more restricted. Antoninus Pius and M. Aurelius struck so few that they are almost unobtainable by the collector,¹⁵ and Commodus was hardly more liberal. One asks oneself why the occasional and scanty coining of them still lingered on, after the mint-masters of Antoninus Pius made up their minds not to follow the scale on which those of Hadrian had been working.

¹⁴ There is one really common quinarius of Augustus, that with reverse **ASIA RECEPTA**. Of all the other emperors named, a quinarius costs about 15s. in the market, while common denarii can be had for 1s. or a trifle over.

¹⁵ As a rough guide to respective rarity, it may be noted that Cohen-Féuardent rates a quinarius of Antoninus at about 150 francs, one of Aurelius at 60, Commodus at 25 francs, Severus at 12 francs and upwards [much too cheap!], Caracalla at 25-30 francs, Elagabalus at 40 francs, Alexander Severus at 15 francs and upwards. Common denarii of any one of these emperors are not worth over 2 francs, some even less.

Probably, as we have already noted with the denarii, there was some ceremony or largess in which quinarii had been habitually distributed, as our own Maundy money still is. At any rate, the quinarius continued to be issued by Severus and his family, perhaps with a little more liberality than Aurelius and his son had shown, but still in such small bulk that they can never have formed any appreciable part of the circulating medium.

When Caracalla in 214 began to issue the new silver denomination of the "Antoninianus", one might have expected that he would have put a complete stop to the coining of the rare quinarius. But this did not happen; it still continued to appear, with a constantly waning proportion of silver in its contents. No doubt it passed as one-third of the "Antoninianus", a sufficiently convenient ratio: a half "Antoninianus" was never struck, evidently because it would have had to circulate at the tiresome proportion of three-quarters of the denarius. Quinarii therefore are found of nearly all the emperors of the middle period of the third century: only those ephemeral princes Balbinus and Pupienus and Aemilian do not appear to have issued them. They are always very rare—Alexander Severus was the last emperor who issued any appreciable quantity of them. They show their relation to the denarius-series by bearing, without exception, the emperor's laureated head, and not the radiated head which was the special mark of the "Antoninianus"-series. Generally they are rather neat, round, and well-struck coins, considering the period in which they were being issued, and contrast favourably in appearance with both sizes of the larger silver (or rather billon) currency. This is especially

notable in their inscriptions, which are quite clear and well formed, though they have to be crammed into a much smaller space than was given by the round of the denarius. But long inscriptions like **GENIVS EXERC. ILLYRICIANI** on a quinarius of Trajan Decius (Pl. III. 4), **FELICITAS PVBLICA** on one of Gallus (Pl. III. 5), **RESTITVTOR ORBIS** on one of Valerian (Pl. III. 7), or **VICTORIA GERMANICA** on one of Gallienus are rendered with a neatness and legibility that is rather surprising.

The weight of the quinarius in its last days became quite as irregular as that of the denarius. The latter between Philip and Gallienus was being struck of almost any weight from 52 grs. down to 28, with a tendency to an average of about 38 grs.¹⁶ For the same period the quinarii vary from a minimum of 14 grs. (of Saloninus Caesar, Pl. III. 12) to a maximum of 30 grs. (a piece of Salonina, the wife of Gallienus). The last named (Pl. III. 10) might, so far as weight goes, have been reckoned a denarius, but its fabric is so small and dumpy that it looks no bigger than other quinarii weighing not more than 16 or 18 grs., and was evidently intended to pass for the smaller coin, though it actually contains more grains of billon than a considerable number of the contemporary denarii. The average medium weight is just under 19 grs.: this if doubled should give a denarius of 38 grs., which is not far from the actual average of the contemporary denarii.¹⁷ It is clear,

¹⁶ Twenty denarii from Philip down to Gallienus in the British Museum, with highest weight 52 grs. and lowest 28.8, weigh 758.8 grs., or an average of 37.9 per piece.

¹⁷ Nineteen similar quinarii weigh 357.3 grs., or an average of 18.8.

then, that the mint-masters only aimed at getting a certain number of denarii or quinarii out of the pound of billon, and did not care in the least how far the individual coin fell below or exceeded the average.

The series of the billon quinarii ends up, like that of the denarii, with some very scarce pieces of Postumus, who (as has been said before) copied every existing denomination of the coins of Gallienus. For a typical quinarius of Gallienus, see **Pl. III. 9, VIRTUS AVG.** But his quinarii are by no means so interesting as the wonderful series of his denarii with the Labours of Hercules. There seem to be only four types of them, as against the 23 known types of the denarius. Two show the obverse so familiar to us on the denarii of Postumus, with the two heads of the Emperor and Hercules side by side; one has the reverse **PAX AVG.** and it is clearly the regular half of denarius No. 19, with the same devices on each side. The other has the reverse **SALVS AVG.** Aesculapius bearing his staff and serpent (**Pl. III. 13**). The remaining pieces are:

- (3) **FIDES MILITVM** *Obv.*—Laureated bust. *Rev.*—Fides holding two military ensigns.
- (4) **P. M. TR. P. COS II P. P.** *Obv.*—Laureated bust. *Rev.*—Emperor standing with globe and spear.

None of the last three pieces has any corresponding denarius, though there is no reason why such should not exist.

The weight of the **SALVS AVG** quinarius in the British Museum is 18.4 grs. The other three are in private collections abroad, and their weight is unascertainable. Cohen-Feuermann only quotes them at second hand, but there is no reason to doubt their existence or authenticity.

So much for the end of the quinarius. But just as the debased "Antoninianus" had a quasi-survival in the tin-washed copper coins of the emperors who followed Gallienus, bearing the emperor's bust with radiate crown, so it must be supposed did the debased quinarius continue to be represented by the smaller copper of those same emperors, bearing a laureated instead of a radiated bust, and markedly inferior in size to the ordinary small-change with the radiate bust. Presumably they may have circulated, like their predecessors, as one-third of the larger coin.

C. OMAN.

IV

THE MINT OF QUEEN ELIZABETH AND THOSE WHO WORKED THERE.

WHEN Elizabeth came to the throne she inherited the heavy burden of the debased currency struck by the earlier Tudors, a legacy which impoverished the opening years of her reign. Mary, it is true, had issued a limited quantity of silver money which approached the old standard of fineness, but she was content, or perhaps compelled, to leave to her successor the solution of the main difficulty. Consequently Elizabeth was faced with the task of harvesting the aftermath of the extravagances of her father and half-brother.

I propose to summarize in the following pages a portion of those mint records and kindred documents which have not hitherto been published by Ruding and other writers, and to add a list of the trials of the pyx as far as the results can be ascertained. The coinages for Ireland will not be discussed in the present paper, but will be reserved for another occasion.

Elizabeth became Queen of England and Ireland on 17 November, 1558, and on the 31st of the next month she directed her first coinage commission to Sir Edmond Peckham, Thomas Stanley, comptroller, and John Bull, assay-master, at the Tower mint. The terms of this order are correctly stated by Ruding (3rd ed.), vol. i, p. 332, and therefore need not be repeated here. It

will be sufficient to say that the standards of weight and fineness for both gold and silver corresponded with those in Mary's indenture of 20 August, 1553, with the exception of the crown-gold of 22 c., which was not ordered by Mary.

On 4 February, 1558-9, Lord North and other privy councillors were authorized by letters patent to call before them the officers of the mint, and to consider (*inter alia*) the means and ways for a reformation of the base coins, and the standard into which they should be converted. The inquiry thus started was very fruitful in suggestions, some practical, some rather droll. One result of the consultations was a series of five proclamations, all duly mentioned by Rading, which reduced the rating of the debased coins, and after an interval demonetized them altogether. Another was the stamping of the two worst classes of Edward's profile shillings with the portcullis and the greyhound respectively, and in this connexion I will quote extracts from the draft of an interesting letter written by Sir William Cecil to the Mayors of towns in which the counter-marking was to be done.

10 October, 1560. — You shall assemble your brethren and a gentleman being a Justice of the Peace in your hall, and you shall in the presence of them all unseal a bag which this messenger will deliver containing two stamping irons and a void plate of steel, the one iron a portcullis the other a greyhound. You shall choose four of the wisest and meetest persons and call to you a goldsmith of good knowledge in the matter of money; they shall sit in an open place or at the market cross and be ready to judge and discern all testons and to stamp and return all that are brought to them. [Then follow directions as to the position on the coins of the respective devices, which appear to have been always correctly placed.] In the case of doubtful testons they should not be stamped but brought to the mint for trial. You shall not sit

before nine in the forenoon or after three in the afternoon, or upon any holy day. And before you depart you shall in open presence put the irons in the bag and seal it with the seals of one of your assistants and yourself and then lock it up in your common chest where your charters remain, so that the irons may not be used or seen except in the open place. When they are of no more use they shall be sealed and returned to the treasurer of the mint (State Papers, Dom., vol. xiv, No. 17).

The letter is accompanied by a rough list, also in Cecil's handwriting, of the selected towns. If we may judge from the number of counter-marked shillings now extant, the holders did not respond very freely to the invitation to come and be deprived of a part of the value of their pocket-money.

A little later, Bristol appears to have been chosen as a good field for the systematic withdrawal of the adulterated silver coinage, as may be learned from a letter dated 30 January, 1560-1.

William Carr, then Mayor of Bristol, says that two goldsmiths had been sent there with £1,000 in new moneys to be distributed in exchange for base moneys of $2\frac{1}{4}d.$, and any residue for pieces of $4\frac{1}{2}d.$, taking $7d.$ in the pound for the exchange. A very discreet citizen accompanied the goldsmiths, presumably to see that justice was done. Notwithstanding the proclamation, little more than £400 in pieces of $2\frac{1}{4}d.$ were brought in. Then it was proclaimed that pieces of $4\frac{1}{2}d.$ and $1\frac{1}{2}d.$ would be similarly exchanged, the goldsmiths taking only $4d.$ in the pound. The outcome of the effort is thus stated by the mayor—

In pieces of $2\frac{1}{4}d.$, 46,546 coins

" " " $4\frac{1}{2}d.$, 12,472 "

" " " $1\frac{1}{2}d.$, 54,805 "

Total value, £1,012 15s. 0d.

(S. P. Dom., Eliz., vol. xvi, No. 10.)

The State Papers also contain the views of Thomas Stanley, the comptroller of the mint, as to the valuation of the base moneys and the methods by which the

losses due to conversion should be met. He propounds the somewhat heretical theory that the coins of 8 oz., 6 oz., and 4 oz. fine silver are alike in richness, as what they lack in fineness they have in weight. He then suggests that all base moneys should be treated as bullion only, and that each owner should make the best of his own loss; alternatively he proposes to defray the cost of amending the coinage by rating the ten thousand parish churches throughout the country at £40 on each parish, which would raise £400,000.

On 5 October, 1560, Stanley again writes from the Tower to Cecil expressing the opinion that it was not desirable to have the new money of the 11 oz. 2 dwt. standard, as much of it would be "turned into plate" or exported. "The present standard holdeth 11 oz. 2 dwt. into the fire and cometh out of the fire 11 oz. fine, which is sterling." He then coined £7,000 a week, and hoped to reach £10,000 if the bullion was speedily refined. "I am sorry the Queen's Majesty misliketh her stamp of her fine moneys; I have sent your honour to show her highness a pound's weight here enclosed, trusting in God that the next stamp shall be better, which the graver is now about" (S. P. Dom., Eliz., vol. xiv, No. 8).

Sir John Yorke, who, it will be remembered, was a prominent but rather unsuccessful mint official under Edward VI, now comes forward with a scheme, and makes a bid for reinstatement in his old position. He tells Cecil, in a letter dated 5 Oct., 1560, that there was a great lack of new moneys and small moneys; there should be two mints with two under-treasurers and other officers, and moneyers to the number of two hundred at the least, who ought to make £60,000 in

each month. "In the end if I be placed I shall make my account better than any shall do by five hundred pounds" (*ut supra*, vol. xiv, No. 10).

The sequel proves that the Government, that is the Privy Council, adopted the substance of John Yorke's proposal, but did not accept his offer to assist in carrying it into effect. It will be seen that Thomas Fleetwood, presumably the comptroller of the suppressed mint in Southwark, was appointed to the office which his late chief desired.

When the Queen ascended the throne she adhered to the policy of consolidation which had reduced all the mints into one establishment at the Tower, therefore the coinage ordered in the first commission to Stanley of 31 Dec., 1558, to which I have already referred, was struck by him at the one mint then existing. There is an Exchequer document which includes an account of the "picked moneys" made by Stanley in the nether mint within the Tower, some extracts from which are appended:

Of fine gold, between 1 Jan., 1558-9 and 31 July, 1560, 657 lb. 11 oz.

Of crown gold, between the same dates, 59 lb. 1 oz.

Of silver 11 oz. fine, between the same dates, 10,437 lb. 4 oz.

Of silver 11 oz. fine, between 1 Oct., 1560 and 24 Oct., 1561, 7,395 lb. Troy.

(Exch. Acc'ts 303/21, and State Papers, Ireland, Folios, vol. vi.)

The term "nether mint" was used to distinguish the undertaking which existed in 1558 from the "upper-houses" built two years later for a special purpose to be presently mentioned.

On 8 Nov., 1560, an indenture was entered into with Thomas Stanley, who was thereby appointed under-treasurer of the nether mint. The new instructions included the "royal" or half-sovereign of the 23 c. $3\frac{1}{2}$ grs. standard; otherwise the two gold coinages remained as they were settled in 1558. The silver coinage, however, showed a greater change, as the 1558 standard of fineness, 11 oz. in the pound Troy, was abandoned in favour of a return to the "old right standard" of 11 oz. 2 dwt., and the sixpence was omitted. Ruding (vol. i, p. 338) states in his list of the silver denominations that the sixpence, threepence, three-halfpence, and three-farthings were among those ordered in 1560. As a matter of fact, only four silver coins are mentioned in this indenture, viz. the shilling, groat, half-groat, and penny (Exch. Acc'ts 307/1, which contains the original document). The only available authority for the issue of the pieces of 6d., 3d., $1\frac{1}{2}$ d., and $\frac{3}{4}$ d. in the early part of the reign is a proclamation dated Nov. 15, 1561, which announces that the Queen "hath presently ordered" that no more shillings were to be struck, and that the last four pieces above mentioned "shall be immediately coined", as there was a scarcity of small moneys. It is probable that a supplementary commission to the same effect was directed to Stanley, but such a warrant, if it survives, has still to be found.

The output of coins from the nether mint by virtue of the indenture of November, 1560, was considerable as regards silver:

Of fine gold, between 1 Dec., 1560 and 31 Aug., 1561, 179 lb. 5 oz.

Of crown gold, between the same dates, 115 lb. 6 oz.

Of silver, 11 oz. 2 dwt. fine, between 1 Dec., 1560 and 24 Oct., 1561, 125,791 lb. 3 oz.

(Exch. Acc'ts 303/21, and State Papers, Ireland, Folios, vol. vi.)

This latter account, which is preserved among the Irish State Papers, continues until Nov. 30, 1570, but it will be sufficient, I think, to quote the foregoing three extracts as being fairly representative of the whole. I do not observe that any attempt is made by the accountant to separate the mill coins from those produced by the old method.

Another Exchequer document records the comptroller's expenditure at the nether mint in 1560 and 1561 :

The Carpenters' Company received £26 for re-edifying a house upon the hill within the Tower, to serve as a fining house. "Johnson, warden of the carpenters", was paid 15s. 2d. for 13 days' work.

The cost of 192 dozen of piles and trussels for shillings, groats, half-groats and pence, and "gold irons", in 1560 was £72, or 7s. 6d. the dozen. There were also further payments for 146 dozen of similar instruments.

William Cure received 50s. for attending and graving in the nether mint for the three months ending Mich: 1561, and a like sum for the Christmas quarter in the same year.

In July 1561, nineteen loads of gravel at 1s. each were supplied "against the Queen's Majesty's coming thither", thus proving that Elizabeth visited the mint. It has been thought that her object was to inspect the new apparatus for mill money (Exch. Acc'ts 303/24).

The question of reopening one of the country mints was raised by Thomas Young, Archbishop of York, in a letter to Sir William Cecil dated 5 August, 1561. The Archbishop suggests that owing to the miserable want of current moneys he should set up "my mint here in York which I have given me by charter", and which,

he adds, had been lately confirmed in the reigns of Edward VI and Mary. He also remarks that the Queen's mints were then stayed, and asks for a lease of the "coining houses" in York, having heard that some one intended to buy them and pull them down for the sake of the lead which covered them (State Papers, Dom., Eliz., vol. xix, no. 7). The answer is not forthcoming, but we know that coining was forbidden outside the Tower notwithstanding the alleged ecclesiastical privilege.

Meanwhile, the ingathering of the base silver coins had made progress, and the various schemes had crystalized into a decision to equip a second mint, in which such moneys were to be converted into the same standard of fineness as was prescribed by Stanley's indenture of 8 Nov., 1560. Accordingly, a contract was signed on 9 Dec., 1560, by which Thomas Fleetwood was appointed as under-treasurer, John Bull as comptroller, and Richard Lee as assay-master, of the upper houses lately erected for the mint within the Tower. These officers covenanted to receive all current base moneys that might be brought in, and to convert the same into shillings, groats, half-groats, and pence of 11 oz. 2 dwt. fine silver; the weights were to be as before, viz. on the basis of sixty shillings by tale in each pound Troy of coined silver. No gold moneys were ordered (Close roll, 3 Eliz., part 1).

Ruding gives (vol. i, p. 339) a computation, on the authority of Leake, of the quantities received and recoined by Fleetwood, but the figures differ so widely from the actual results as stated by the under-treasurer himself that I will reproduce the totals in the latter's account of his stewardship:

The period, $1\frac{1}{2}$ years, covered by the account runs from Michaelmas 1560 to Midsummer 1562, when the new mint was most probably closed.

The total of base moneys (English and Irish) was, by tale, £325,938 in pieces of $4\frac{1}{2}d.$, $2\frac{1}{2}d.$, $1\frac{1}{2}d.$, &c. as cried down by the proclamations.

The striking of the fine coins, described as "pitched moneys", began in December 1560, the total being 121,619 pounds Troy, valued at 60s. the pound, or by tale £364,857. The finers employed in the work were "Almaynes".

Derick Anthony the graver and John Lawrence the sinker had provided 955 stamps at 12*d.* apiece for countermarking the base testons (Decl. Acc'ts., Pipe Office, 2185).

About this time economic pressure compelled the Queen to reduce by one-third the values of all coins then current, making the rates equivalent to those which were in force between 6 Edward IV and 16 Henry VIII. The alteration was effected by a proclamation of 4 (?) March, 1561-2, under which the fine sovereign was to be valued at 20*s.*, the pound sovereign at 13*s.* 4*d.*, the shilling at 8*d.*, and the smaller denominations in the same proportion (MS. in library of Society of Antiquaries). I believe that this proclamation was not explicitly revoked or amended, but the previous rating seems to have been indirectly restored by the coinage indenture of 1572, which assigned to each of the items then ordered the higher value current before March, 1561-2.

ELOYE MESTRELL.

It will be convenient to arrange under a separate heading certain unpublished allusions to Mestrell, who was responsible for the introduction to this country of the mill or press for the striking of coins and medals, as a substitute for the hammer wielded by a moneyer. In the absence, so far as I can discover, of any formal

appointment on the staff of the mint, it is not easy to fix the precise date when he was first employed. Apparently the earliest reference to his machinery is contained in an account prepared by the undertreasurer of the "upper houses" in the Tower, the entries being to the following effect :

Allowed for money paid for certain presses, rollers and cutters of iron and steel and divers other engines, and for materials and workmanship and sundry kinds of necessities employed in the new manner of coining moneys devised by Elloye the Frenchman. The total cost of the appliances in 1561, including Mestrell's charges for "finding himself" during the time of his service then past, was £397.

Allowed to Robert Hill £13 6s. 8d. *per annum*, for casting the ingots for the press money.

(Declared Acc'ts, Pipe Office, 2185.)

The new system of working is again mentioned in the comptroller's book of expenditure at the nether mint in the years 1560 and 1561; it would appear, therefore, that machine-struck coins were produced in the latter year in both of the Tower mints, but the evidence is not quite definite on that point. I append a detailed extract from the comptroller's figures :

January, 1561-2.

The Presse.

P^d to Mr. Blunte for 2 c. of crosbowe steele and 3 lbs. wt. at 8d. the lb. ^{li} 7-9-4.

For y^e forgeinge of the same into roolers 40s.

For a payre of cheekes to the same roulers ^{li} 3.

For weynscott 12s.

For caryages 2s.

For a payre of compasses 10d.

For casting a copp^r roler 10s.

More for a molde d^d to the caster, of turned wood 12d.

For 2 dozs of emerye 8s.

Paid to 2 laborers for turneing the whele y^t the rowlers are justified w^t all, for 8 dayes at 10d. the daye 13s. 4d.

All is ^{li} 14-16-6.

(Exch. Acc'ts 303/24.)

The apparatus here described is, I think, not a coin-press but a *laminoir* or roller press for reducing the ingots of metal to the desired thickness, preparatory to the cutting-out of the blanks. My opinion was confirmed by Mr. W. J. Hocking, to whom I sent a copy of the transcript, and I am indebted to him for some additional comments on the construction of the machine and on kindred matters.

Mr. Hocking writes :

"Judging by the amount of steel purchased (2 cwt.) it is likely that two or three pairs of rollers of varying diameters would have been forged. The copper roller would probably be chosen in order to secure a very smooth surface, and is likely to have been provided for use in the finishing stage.

"The term 'rollers' in these notes would apply only to the iron cylinders between which the metal was passed, while the 'presse' comprehends the entire machine with its mountings, housings, and all the necessary connexions for its operation, including the 'wheel that the rollers are justified withal'. The last phrase probably refers to the mechanism for regulating and maintaining the required distance between the rollers while at work, and by this means ensuring the production of fillets or strips of a uniform thickness.

"It is noteworthy that no mention is made of a *balancier*, or any special contrivance for using the dies more effectively. Since it seems no coin larger than a shilling was struck by Mestrell, no very bulky machine would be required, and whatever method he adopted the necessary 'stamps'

were no doubt included in that phrase so convenient to the non-technical man—'divers other engines'.

"On referring to my old paper in 1909,¹ I am inclined to think that the suggestions therein made with regard to Mestrell's process are pretty generally confirmed by your newly-discovered MSS. Only, you now thoroughly establish what could not be deduced in any case from the coins alone. It was, as I then said (p. 79), impossible to determine whether Mestrell made use of a press or mill to bring the fillets to a uniform thickness, although there was a presumption in favour of the affirmative, based on the appearance of the coins. Your document settles this question absolutely, and has therefore a high degree of interest and importance."

The remuneration paid to the French engineer cannot be said to have been excessive if it was limited to the sum mentioned in Harl. MS. 698, p. 9, where a memorandum in a contemporary hand states that an annuity of £25 was granted to Eloy Mestrell, Frenchman, in consideration of service in and about the coinage of money so long as he shall be occupied in the said faculty (Signet bill, December, 1561). I have not been able, however, to find the original warrant.

The earliest mill coins struck by Mestrell's process did not include any gold pieces of either standard, as is shown by a memorandum respecting a pyx trial on 24 October, 1561, which will be cited among similar details on a subsequent page; the same document

¹ *Num. Chron.*, ser. 4, vol. 9, p. 56.

proves that the silver mill coins then tried were of the 11 oz. 2 dw. standard of fineness. Therefore the latter were made in accordance with the commission to Stanley of 8 November, 1560, rather than by virtue of the order dated 31 December, 1558, which prescribed the lower standard of 11 oz. fine silver in the pound Troy.

It is clear that an official known as "Mr. Blunte" supervised the striking of the mill coins, as his name is mentioned in the record of the occasion on which they were tried at the Star Chamber; he was also concerned in the erection of the roller press, or *laminoir*, for the nether mint, as already stated.

Mestrell's appliances were so obviously antagonistic to the interests of the moneyers that it is not surprising to find the mint officers endeavouring to prevent a successful development of the new system. Indeed, if we substituted Briot for Mestrell and Parkhurst for Martin in the letter and report which I am about to quote, we might well believe that the date was sixty years later. In the period 1562-72, Eloy, as he was generally called, had fallen into disgrace for a reason now unknown and had been deprived of his emoluments. This gave rise to a correspondence which illustrates the official attitude towards the Frenchman.

Lord Treasurer Burghley had suggested that Mestrell should be restored to his house-rooms and other allowances, with payment of arrears and a continuance of his pension; if there was any just cause to the contrary the Lord Treasurer was to be advertised thereof. To this a reply was sent on 25 August, 1572, by Richard Martin (then recently appointed warden) on behalf of the mint, stating that sundry trials of the engine and coinage had been made, and that the workmanship was imperfect; also that several other trials at which Eloye was present had been reported to Sir Walter

Mildmay, as was particularly mentioned on the paper enclosed [but no longer with the letter] as written down by the assay-master; that a trial had also been made of the workmanship of the moneyers, which was reported last on the paper aforesaid. Martin goes on to say that Eloye should pay for the charges of his engine, yet he had taken iron-work from the smith of the mint to the value of £30 or more. As to the house-room, Eloye had as much as ever he had, and more than he needed or could well use, as divers lead-work of the building had been cut and taken away. As to the fee, they thought that Eloye's patent had become void by his attainder, and that their mint indenture did not warrant the payment of a fee to him. It was their duty to certify "that, by pretence of the said engine much resort of divers persons [was] made thereunto, and the place where it standeth adjoineth next to the lodgings of many prisoners in the Tower". Finally, Martin commits himself to the opinion that "neither the said engine or any workmanship to be wrought thereby will be either fit for the coinage or for the Queen's Majesty's profit" (Lansdowne MS. 14, No. 5).

Few persons who have studied the degree of mechanical excellence attained by the mill coins of Elizabeth and have compared them with those produced by the hammer, will be disposed to agree with the warden's *obiter dictum* as to the merits of the process. Although the "paper enclosed", containing a note of the experiments, has been separated from its covering letter, I have reason to believe that it has not been lost. If I am right, the missing report is bound up in another volume of the Lansdowne manuscripts. The second document is not fully dated, but it manifestly refers to the subject of Martin's letter of 25 August, 1572, in spite of the fact that it is catalogued under the year 1586. This latter date must, in any event, be incorrect, seeing that Eloy died about April, 1578. In some respects the report from the assay-master is of peculiar interest, since it discloses the rate at which coins of certain denomina-

tions could be made by picked men in the days when machinery was unknown, and we may, therefore, be grateful to Mestrell's critics for recording these practical details.

Certain trials made by Eloye with his new invention for the upright and perfect making of moneys, which he promised to perform.

19 May : The officers caused two ingots to be cast in two moulds which Eloye had made for that purpose, weighing 3 lb. 10 oz. $\frac{3}{4}$ di., to make pieces of sixpence. He began to work the same with his first cutter half an hour after one of the clock, and it was very near four of the clock before he had cut 2 lb., whereof 1 lb. being tried by tale came out at 54s. and the other pound was 55s. 6d. by tale. When weighed piecemeal, very few ounces agreed one with another, for they varied from one to six grains. So there was no certainty in his first cutter. We delivered to him 1 lb. of the same to be justified, being only 54s. He and his man drew them four times apiece through his justifying rollers, with twice annealing, and afterwards cut of them with his last cutter half a pound weight, because the time would serve no longer, for it was past six of the clock at night ; which half pound rose to 81s. by tale, and when weighed they varied one from another one grain to a quarter of a grain ; and he made in syssel and brocage,² when trying the said half pound, 8 $\frac{1}{2}$ oz. and 2 dwt. And because the matter fell out no better there was no more done therein.

Further experiments of a similar character with the sixpence and threepence were made by Eloy on 30 May, 2, 13, and 16 June, and 14 July, the details of which are stated in the report.

On 3rd July the moneyers demonstrated "what they could do in making of upright moneys, how long they would be in working and how much waste of brocage and syssel would arise of their work". 30 lb. of ingot silver were delivered to two hammer-men and two shear-men. "The shear-men did work nine hours and three quarters and the hammer-men did work thirteen hours. They made of the same 30 lb. weight, 24 lb. weight in pieces of 6d. and

² 'Brocage' refers to the waste caused by broken blanks. 'Syssel' is the waste remaining after the blanks are cut out of the strips of metal.

2 lb. weight in pieces of 3*d.*, and there remained in syssel 4 lb. weight. And a pound weight of the pieces of 6*d.* was by tale 3 *li.* and 2*d.*, and a pound weight of the pieces of 3*d.* was 3 *li.* 4*d.*" And when trying by weight 20*s.* of the pieces of 6*d.*, the heaviest was too heavy by 4 grains and the lightest too light by 6 grains in one ounce; and of the pieces of 3*d.*, the heaviest was too heavy by 6 grains, and the lightest too light by as much. Signed by William Williams, who was one of the assay-masters, and other persons (Lansdowne MS. 48, No. 15).

We are not told the decision at which Sir Walter Mildmay arrived, but it is a suggestive fact that no dated mill coins are known after 1572, save only the pattern sixpences and threepence of 1574 and 1575, which are beautiful examples of Derick Anthony's skill as a graver, and of the efficiency of the apparatus for striking them. There is evidence that the Government at one time contemplated the provision of a fixed ratio of "press money" in each 1,000 lb. ordered, otherwise none might have been struck in consequence of the higher charges for workmanship, but the intention was not carried into effect.

Eloy Mestrell's subsequent career and its termination have been described by Mr. Hocking in the paper to which I have already referred.

THE COINAGE OF 1572.

After a long digression I will return to the main subject. The nether mint continued to work under the indenture of November, 1560, for twelve years, until 1572, when several changes took place in the staff and in the coinage. The immediate cause of the new appointments was the death of Thomas Stanley, which occurred on 13 December, 1571, as is stated in an *inq.*

post mortem held at Lincoln Castle respecting his lands in that county. His mint accounts had not been adjusted, but they were subsequently discharged by a payment of £1,500 by his only child and heiress, Mary Herbert.

I think we may assume that the upper mint had fulfilled its purpose about 1562-3, and had then become extinct, leaving only one establishment within the Tower boundaries.

On 18 April, 1572, Richard Martin, alderman and goldsmith, received a grant of the office of warden of the mint for his life, as John Browne and Thomas Pope had held it. This was a revival of the ancient office which had been abolished by Henry VIII in May, 1544, when the "undertreasurers" were appointed in substitution. Another grant, also dated 18 April, 1572, appointed John Lonison, goldsmith, as master-worker for his life (Patent rolls, *passim*). On the following day an indenture was executed by Lonison, the terms of which are mentioned by Ruding (vol. i, p. 345). The standards of weight and fineness remained as fixed by the indenture of 1560, but the crown-gold coins were now discontinued. The fine-gold coins were the angel, angellet, and quarter angel, while the silver issue was limited to the half-shilling, threepence, three-halfpence, and three-farthings. The master-worker covenanted to make 4 lb. of the $1\frac{1}{2}d.$ piece and 2 lb. of the $\frac{3}{4}d.$ in each 100 lb. of silver moneys, also to place a privy-mark on all coins and the accustomed mark of the rose on all silver pieces, so that they might be discerned from other moneys. The pyx was to be opened once in three months. Attendance was to be given at the mint every Saturday and such other

days as may be agreed by the warden and master-worker, for the receipt of bullion (*Exch. Acc'ts.* 307/1, and *Harl. MS.* 4222, No. 45).

The appointment of Martin and Lonison on the staff of the Tower marks the beginning of interminable controversies which were ended only by the death of the master-worker. There are many references in Elizabethan manuscripts to the accusations brought against Lonison and his replies thereto, but happily I am not concerned to offer any opinion on the merits of the disputes.

Two years after the indenture of 1572 a shortage of small coins arose, and a commission to remedy the want was directed to Lonison :

After reciting the indenture of 19 April, 14 Elizabeth, by which the master-worker had undertaken to strike certain moneys, it is declared that the Queen was minded to have a certain other piece not therein mentioned ; therefore he is ordered to strike the "single penny" at the rate of 720 in the pound Troy, and of 11 oz. 2 dwt. fine silver. Ten pounds weight and no more to be made in one year. And after being struck the pence shall be delivered to the warden "to be by him kept to our use to be otherwise disposed as by our council . . . shall be ordered". And the master-worker shall continue to strike all the moneys mentioned in the said indenture. Eighteen pence to be taken up of every pound weight, of which eight pence was for the master-worker and ten pence towards the fees of the other officers. Dated 2 April, 1574 (*Patent roll*, No. 1606, Elizabeth, various years).

The prohibition against issuing the pence for circulation seems to defeat the object of the instructions, but it is possible that the Queen intended herself to distribute these small pieces as charitable gifts to the poor. In this connexion it is significant that the Privy Council ordered the warden, on 18 April, 1576, to deliver

£12 in pence for the Maundy; and again on 18 March, 1577-8, there was a similar requisition for £13 in new pence.

The mint authorities apparently had the use of all the available talent, from whatever source it might have been derived. In March and April, 1576-7, the Privy Council ordered that one Crompton who had been condemned to death for false coining should be removed to the Tower, where he might do good service in the mint "by reason of his cunning and experience in working", and that the warden should so employ him, taking care that he did not escape.

Ruding tells his readers, on the authority of Lowndes, that in 1577 an indenture was made with Lonison for the striking of gold and silver of the old standards, precisely on the same terms as in the Queen's fourteenth year (vol. i, p. 348). This does not state the facts quite accurately, as the subjoined extracts will show:

Licence to John Lonyson, goldsmith and master-worker at the Tower, reciting the indenture of 19 April, 14 Elizabeth (1572), whereby he was authorized to make three manner of moneys of gold, 23 c. $3\frac{1}{2}$ grs. fine. The Queen being minded to have two other coins of gold of the same standard licenses the master-worker to strike the sovereign, running for 30s., of which 24 shall weigh 1 lb. Troy, and the royal, being half of the sovereign, at 48 in the pound Troy.

Remedy as before. "One piece to be taken from every melting for the piking." Dated 1st November, 1577 (Pat. roll, 19 Eliz., part 2).

By some mischance the detailed accounts of the master-worker have not survived, but there is evidence to show that Lonison's management of the coinage was not so blameworthy as his enemies alleged. At all events, the products of the mint during his first

eight years were duly tried at the Star Chamber and found to be good, and the master-worker received a formal acquittance from the Crown by letters patent (Pat. roll, 24 Eliz., part 3).

Although the Queen had suppressed the debased money of her predecessors and had restored her own coinage to the old standards of fineness, it becomes clear that her exchequer was unable or unwilling to bear the additional burden caused by the improvements. I find a strange series of commissions, each of which reduced for a limited period the quality and weight of the coins ordered by the indenture of 1572 and varied the sums to be "taken up" for mint charges; also, each document repeated the order to strike the penny in addition to the silver coins which Lonison had undertaken to make. As the majority of the eight supplementary orders are omitted by Ruding, I have arranged them in a separate group for greater clearness:

(1) Commission to Richard Martin, warden, and John Lonison, master-worker, dated 27 Sept. 1578. The Queen being minded to tolerate for a short time some alteration from the express words of the indenture of 19 April, 1572, authorizes the master-worker to use a gold standard of 23 c. $3\frac{1}{2}$ grs. fine, and a silver standard of 11 oz. 1 dwt. fine. One pound Troy of such gold shall contain £36 1s. 10 $\frac{1}{2}$ d. by tale, and the pound Troy of silver shall contain 60s. 3d. by tale. The new commixtures were to be made to the best of their skill and power, as they conveniently could. Lonison was to strike a penny at the rate of 720 in the pound Troy, in addition to the other coins. Of each 100 lb. of silver he was to make 1 lb. of three halfpence, 2 lb. of pence, and 1 lb. of three farthings. He was not to receive any bullion after 16th November then next, and was to strike into coin of the said standards only such bullion as had been received before that day (Pat. roll, 20 Eliz., part 4).

(2) The like to the same persons. Dated 29 Dec., 1578. The Queen being minded to tolerate for some longer time

the changes mentioned in the last warrant, authorizes the master-worker, in similar terms, to continue them until 24 April then next (Pat. roll, 21 Eliz., part 7).

(3) The like. Dated 25 May, 1579.³ Repeats the terms and expresses the Queen's tolerance of the variations until 31 October then next (Pat. roll, Eliz., No. 1606, m. 19 *dors.*).

(4) The like. Dated 23 Dec., 1579. The toleration is extended to 31 March then next (Pat. roll, Eliz., No. 1606, m. 18 *dors.*).

(5) The like. Dated 28 Nov., 1580. Extended until 20 February then next (Pat. roll, Eliz., No. 1606, m. 20 *dors.*).

(6) The like. Dated 3 May, 1582. Extended until the contrary was signified by warrant (Pat. roll, 24 Eliz., part 3).

(7). The like. Dated 23 May, 1582. Until 30 November then next (Pat. roll, 24 Eliz., part 1).

(8) The like. Dated 30 May, 1582. Until 30 October then next (Pat. roll, 24 Eliz., part 1).

The practical effect of the foregoing eight warrants was (A) to reduce the fineness of the gold coins by a quarter of a carat-grain, or 15 grs. Troy, and the fineness of the silver coins by one pennyweight, in each pound Troy respectively; and (B) to reduce the weight of the coins by the equivalent of the increased amounts into which the pounds Troy of gold and silver were to be sheared, that is, 1s. 10½*d.* and 3*d.* respectively. The reductions in weight would be scarcely appreciable in individual coins, but considerable when applied to masses of bullion.

The gold and silver pieces affected by the twofold modifications were those marked (according to the table in Hawkins) with the cross and the sword, which symbols were used between the years 1577 and 1582 inclusive. With regard to the privy-mark cross, an examination of the coins in the British Museum proves that the cross is of two distinct varieties which occur

³ This date is omitted on the roll, but is supplied from Harl. MS. 698, p. 318.

in both metals. From 1577 to 1579, inclusive, the mark is a Greek cross, that is, with arms of equal length. In 1580 and 1581 the coins are marked with a Latin cross, or long cross. This difference does not appear to have been recorded in Hawkins or Kenyon, or in the British Museum *Handbook*. The accompanying illustration shows a sixpence of 1578 marked with the short cross, and another of 1581 with the long cross.



Another sixpence, in my own cabinet, shows '80 struck over '79, and the Latin cross over the Greek variety. I subsequently found that the trials of the pyx confirmed my observation of the coins in question.

In 1575 Lonison, of London, was granted *or, a cross gules* as his arms. This grant conceivably may have influenced the master-worker in his choice of a cross as his privy-mark on the coinage of 1577-81.

Among the consequences of the toleration commissions, if I may so describe them in default of a better name, is a lessening of the prestige which has accrued to Elizabeth for her reformation of the coinage, as

there was a partial relapse extending over five years of active work. The piecemeal orders must have been very confusing, but it will be noticed that there was no reservation of the pence when coined, as was the case in the earlier commission of 1574.

A committee of the Privy Council had been appointed to investigate the cause of the disputes at the mint to which I have already alluded. A report signed by Nicholas Bacon and six others is dated 24 May, 1578, wherein they recommend that a discharge be given to Lonison for such breaches of covenant as he had committed and that his accounts be passed. If he would not accept 16*d.* in each pound weight of silver as his fee, the Queen should make choice of another officer. In order that the master-worker should not be dismissed without a sufficient recompense he should be granted a pension of £300, with £100 to his widow during her life, out of the mint revenues (Harl. MS. 698 and Lansdowne 48). I believe that Lonison retained his post until his death on 21 May, 1582. He was buried at St. Vedast's Church, Foster Lane, and his *inq. post mortem* proves that he owned lands in the parishes of Tintinhull and Trent, co. Somerset.

THE COINAGES OF 1583, 1584, AND 1593.

The office of master-worker having been thus vacated, Richard Martin, the warden, obtained a grant of the mastership on 21 August, 1582. The occupancy of the two posts by one man seems to be obviously undesirable, as "the warden was to take account of the master-worker's doings", to quote a contemporary writer. On the same day Andrew Palmer was

appointed as comptroller; he is said to have been "the warden's creature and a scrivener by trade", but the latter statement is not supported by his patent, which describes him as a goldsmith. Altogether, the mint officials of that time were not a very happy family.

These new appointments were followed by the sealing of another indenture which regularized the issue of the penny and reinstated the former standards of weight and fineness which had been weakened in the manner already described.¹ On 30 January, 1582-3, Martin covenanted to make—

The angel, half and quarter angel of fine gold, as struck by his predecessor under the indenture of 1572; and five coins of silver of the 11 oz. 2 dwt. standard, that is, the shilling, half-shilling, twopence, penny and halfpenny, of which the pound Troy was to contain 60s. by tale. In each pound weight of coined silver there were to be 2 lb. of twopences, $1\frac{1}{2}$ lb. of pence, and $\frac{1}{2}$ lb. of halfpence. The master-worker was to make on the three last named moneys a distinct stamp whereby one might be discerned from the others. An additional halfpenny for each pound weight of the small silver coins was to be given to the moneyers. From each pound Troy of gold 6s. was to be taken up, of which the master-worker was to receive 4s. 9d.; the corresponding figures as to silver were 22d. and 14d. respectively (Close roll, 25 Eliz., part 11, and Exch. Acc'ts 307/1).

The main changes effected by this order were the restoration of the shilling and the omission of the three-pence, three-halfpence, and three-farthings; the half-penny was included in the regular list for the first time in this reign, although a few exist with an earlier mark.

¹ The mint accounts state that a coinage commission was directed to Martin on 22 August, 1582. My search for it has been unsuccessful, but it certainly became operative. It is possible that this order would add to the number of "toleration" warrants, making a total of nine.

On 20 April, 1584, a privy-seal warrant was issued to Richard Martin, in his dual capacity, and Andrew Palmer the comptroller—

After reciting that three coins of fine gold were to be struck by virtue of the indenture of 30 January, 1582-3, it is ordered that two other gold coins of the same fineness should be made "for our necessary service", that is to say, "a piece which shall be called a noble", running for 15s., of which there shall be 48 in the pound Troy. And "one other piece which shall be called a double noble", running for 30s., of which there shall be 24 in the pound Troy. If the quantity of bullion to be so coined as aforesaid shall be too great, it may be limited, if six of the Privy Council think it expedient. The warrant is to be in force until it is determined by a further order.

There are also the usual clauses as to the pyx, &c. (Chancery Warrants, Series II, file 1416).

Although it is clear that the coins now ordered were really the fine sovereign and the ryal, the form of the warrant is unusual, and the names assigned to the denominations are strange. When Elizabeth ordered the gold piece of 15s. in November, 1560, and again in November, 1577, it was called a royal, while the term "double noble" is quite unknown, I believe, in earlier mint records. With respect to the name of the larger coin, perhaps the intention was to retain the word "noble" as being a familiar title, under circumstances in which the "sovereign" would be unfamiliar when applied to current money. The rose nobles, or ryals, of this period present three varieties of obverse legend, as stated in Kenyon, p. 126. No. 3 shows the Queen's titles in the customary form, Nos. 1 and 2 have legends which differ from No. 3 and from each other, and have not yet been satisfactorily explained. All the coins are marked on the reverse with the \bar{A} , which

links No. 3, at all events, to the warrant of April, 1584.

I will next cite evidence which indicates that these nobles and double nobles were officially exported for circulation in the Low Countries, more particularly while Robert Dudley, Earl of Leicester, commanded our expedition to Holland in 1585-7.

First, there is a memorandum from the treasurer for the wars asking for the advice of the warden of the mint as to the best means of "uttering those rose nobles and double nobles which I am presently to receive". He also asks for an expert man, skilful of mintage, to go over with him, by whose help he might provide much foreign gold which could be sent to England and re-minted into nobles. He would give 30s. for each pound weight of such coins, which was 24s. more than the Queen received for other gold pieces (State Papers, Dom., Eliz., Addenda, vol. xxix, No. 23. Undated, but calendared as 1585).

Secondly, a letter from Leicester to Burghley on 2 February, 1585-6, in which the writer offers to answer to the Queen for £40,000 yearly by the coinage of rose nobles in Holland, where she then received 30s. for that coin [? for the coinage of the pound weight]. This letter is annotated by the Lord Treasurer (Hatfield Papers).

Then there is a manuscript proclamation or notice by Leicester as governor of the Belgic provinces, describing the various unlawful coins then current. Among them is *nobilis rosatus*, struck in Gorcum by the authority of Don Antonio, of which one side is said to agree with the English noble; the other side corresponded with No. 2 legend in Kenyon. A similar

coin, said to have been struck *sub nomine principis à Simmey*,⁵ bore a legend corresponding with No. 1 in Kenyon (Cotton MS., Otho E. x, fol. 278).

These extracts serve to prove (1) that the noble and double noble were sent by the Queen to the Low Countries, and (2) that the smaller denomination was imitated at Gorcum or elsewhere in those territories, where the noble had been a familiar medium of exchange for many years. Not so the sovereign; hence, I would suggest, its change of title.

Martin had now to suffer some of the annoyances and troubles which he and his friends had inflicted on Lonison in earlier years. The warden and master-worker was in turn accused of acting contrary to the indentures, and a jury was instructed to test the silver coins marked with the sword, bell, *Ā*, and scallop shell, respectively. The jurors received from the Exchequer 66s. of each privy-mark and then took the money to the Tower for a trial of its weight and fineness. The inquiry was to take place "at such time of the day as they shall not be at the church for Divine service", the second of the appointed days being Ascension Day. Martin was present and strongly objected to the proceedings, in the course of which he used violent language, as is described in a letter accompanying the report to Lord Treasurer Burghley. The latter document is dated 13 May, 1586, and shows that there was nothing seriously wrong with the coins chosen for examination. In the following month, June, 1586, another private trial was held at Cecil House, Westminster, when coins made by Lonison and marked with "powder

⁵ I am unable to explain this word; possibly it is geographical.

armeye" (ermine), the acorn and the eglantine flower, respectively, were tested. Apparently the moneys struck by Lonison were tried against those for which Martin was responsible (Lansdowne MS. 48, Nos. 1 to 3). Neither of the examinations constituted a pyx trial in the ordinary sense of the term, as that ceremony had been performed at the Star Chamber soon after the striking of the coins.

In 1593 Martin, then Sir Richard, was party to another indenture whereby he covenanted to make (in addition to the angels, &c., of 1582-3 and the nobles, &c., of 1584) four other gold coins of the 22 c. standard, viz. the sovereign and its half, and the crown and its half. The sovereign to be of such weight that the pound Troy would contain 33 in number, and the smaller pieces in proportion. The remedy to be $\frac{1}{4}$ of a carat. Dated 10 June, 1593 (Close roll, 25 Eliz., part 21).

This order restored the use of crown-gold, which had been in abeyance since 1572.

There are three accounts by Martin dealing with his work at the Tower by virtue of the instructions of 1582-3, 1584, and 1593. The combined figures cover the period from 22 August, 1582, to 29 September, 1599, some of the items being less uninteresting than is usual in such documents.

The first account, ending on 31 January, 1591-2, includes the following information:

Gold, 23 c. $3\frac{1}{4}$ grs. 989 lb. were struck between 23 August, 1582, and 31 January, then next.

Silver, 11 oz. 1 dwt. 26,235 lb. were struck between 23 August, 1582, and 31 January, then next.

(The Queen's profit was 3*s.* on each pound Troy of gold, and 10½*d.* on the silver.)

Gold, 23 c. 3½ grs. 6,218 lb. were struck between 1 February, 1582-3, and 31 January, 1591-2.

Silver, 11 oz. 2 dwt. 302,359 lb. were struck between 1 February, 1582-3, and 31 January, 1591-2.

(In this case the amounts "taken up" were 15*d.* and 8*d.* respectively on each pound Troy, which presumably denotes the lower profit derivable from the higher standards of fineness and weight.)

Gold, 23 c. 3½ grs. Nobles and double nobles, 776 lb. between 3 May, 1584, and 31 January, 1586-7.

(Here the sum to be levied was 24*s.* in the pound weight; this large and quite unusual deduction seems to confirm the idea that these coins, or the nobles only, were to be exported, as I have already indicated.)

Among the items of expenditure was this entry:

"For the painters; as well for the drawing and description of various patterns (*typus*) of stamped gold and silver as for their expenses in riding from London to Windsor where the Court still tarried, £13 6*s.* 8*d.* For two painters going together with the comptroller from London to Hertford to the Lord Treasurer concerning the drawing of the stamped money, 65*s.* 10*d.* Expenses of the graver of the irons about the same business, 18*s.* 8*d.* Likewise the charges about the delay in drawing the patterns and completing the indenture, £4 7*s.* 3*d.* Total, £21 18*s.* 5*d.*"

There is no direct evidence as to the date when these sketches and patterns were submitted to Elizabeth for her approval, but the mention of an indenture seems

to imply a connexion with the order of January, 1582-3, or that of 1584, or perhaps with both of them. We know, for instance, that the indenture of 1582-3 was followed by the issue of a new type of half-groat, no doubt in compliance with the instructions to make a clear distinction between the three small silver coins. As regards the 1584 commission to strike nobles and double nobles, the former was an entirely new coin, as the denomination is not known to exist with a privy-mark earlier than the \bar{A} (1582-4), while its "double", the fine sovereign, with the same mark shows that new dies had then been prepared. Who were the "two painters" of the drawings? It may be that they were George Gower, who became serjeant-painter in 1581, and Nicholas Hilliard, the Queen's miniature painter. I should add that it was intended in 1584 to confer upon Gower the sole privilege of making royal portraits, saving only the right of Hilliard to execute small pictures, but the warrant, although engrossed, was not completed.

Other entries in the account tell us that there were five pyx trials between 1582 and 1591-2, costing £65 3s. 4d.; the records of some of these trials appear to be now missing. New standard weights in 1583 cost £30 18s. 4d. Expended for stone paving in the wall of the Tower for keeping out the water from the furnace, £15 0s. 19d. (*sic*); this points to trouble with the moat or the river, and there is a further charge for *tollenones vel haustra*, that is, pumps, of which one was new and cost 53s. 2d.

(Exch. Acc'ts 296/14.)

The second of Martin's accounts, ending on 31 January, 1596-7, partially overlaps the first and consequently

repeats some of the items, including that concerning the painters; in this entry the Latin text differs very slightly from 296/14 and states the total expense as £25 17s. 0d., but it must, I think, refer to the same occasion.

The third account, ending on 29 September, 1599, contains similar information. One incident was an unfortunate fire at the mint which necessitated another new pump, *nova antlia*, and a cleaning of the spring where it was placed. I shall refrain from quoting any figures from these two documents and be content with indicating whence the statistical details may be obtained.

(Exch. Acc'ts 296/15 and 16.)

A few comments may be made on the gravers who worked in the closing years of the sixteenth century. Between 1589 and 1592, Derick Anthony's fees were received by Charles Anthony on behalf of his father, but in March, 1593, Charles signs the receipt for the first time as the holder of the office. Consequently, I infer that he then became graver *de facto*, although he did not obtain a patent until 1599. If I am right, Charles Anthony would be responsible for the crown-gold coins struck in pursuance of the order of June, 1593, and for the handsome shillings marked with the key. There is a pleasant letter from Hilliard to Sir Robert Cecil, dated 2 June, 1599, in which the writer disclaims any intention of being a competitor with Charles Anthony, the graver, for a patent for that office in which the latter had long served. He would not hinder Anthony in any way, but would further him. At the same time he hopes that Cecil would stand his friend, as he had been "brought into great

extremes" through missing so many suits (offices) for eight years, during which he had received only £40 (Hatfield Papers). At this time, 1599, John Rutlinger, *alias* Eareth, is described as *subsculptor ferrorum* and George Tyson as *impressor ferrorum*. The former individual received a high compliment in a letter written by Sir J. Peyton to Cecil on 26 May, 1600: "John Rutlyngham (*sic*) one of her Majesty's gravers in the mint, a most exquisite man in that kind of profession, desires to present some fruits of his labours for your approbation."

It is remarkable that very few, if any, of Elizabethan medals can be definitely attributed to either of the Anthonys. When two high officials of the mint, Thomas Stanley and Richard Martin, wished to celebrate certain events in their own lives they entrusted the execution of the medals to the artist who signs himself "Ste H" (Med. Ill., i, pp. 105 and 107). There is, however, an oval medal or badge, dated 1572, on which the Queen's portrait strongly resembles that on the coinage, and may therefore have been the work of Derick Anthony. The obverse legend *Posui*, &c., also suggests an association with the silver moneys, but the reverse appears on other medals, and does not correspond in size with the obverse, which is slightly wider. Other small medals exhibit a very similar portrait with a rose behind the head, which again is reminiscent of the coins (Med. Ill., i, pp. 116 and 120).

The infringements of the privilege of the graver to make all public seals led to a joint remonstrance by him and the warden, wherein it was pointed out that in former times the King's graver of the mint within the Tower engraved such seals and deposited the

patterns in the Exchequer for comparison in cases of fraud; that customers, alnagers (measurers of cloth), and other officers had caused seals to be made at their own pleasure, against all good order and usage, wherefore it was necessary that all such seals should be defaced as counterfeits. And they ask that the records should be searched for the penalties due to her Majesty by reason of the offences (Lansdowne MS. 113, No. 36).

Returning now to the main business of the mint, it should be noted that the anomalous position of Sir Richard Martin was terminated in 1599, possibly on account of certain complaints made by goldsmiths in the previous year. Be that as it may, Martin apparently surrendered both of his letters patent as a preliminary to a joint grant to himself and his son Richard, for their lives, of the office of master-worker, and a grant to Thomas Knyvett of the office of warden, also for his life. The new appointments are dated 28 September, 1599 (Pat. roll, 41 Eliz., parts 17 and 22). About the same date Palmer, the comptroller, vacated his post. A solatium to Martin, the elder, was given in the next year by a warrant authorizing him to receive 2*d.* by tale on each pound weight of silver coined under the indenture of January, 1582-3, in addition to the amount allowed to him by that order, and for so long as he should continue to be master-worker (Privy seal, 1 Aug., 1600).

One of the instructions given to Knyvett at the beginning of his career as warden was for the melting in the Tower crucibles of an extraordinary collection of gold and silver plate. Among the items were mitres and St. Nicholas mitres (worn by the boy-bishops in cathedrals and collegiate churches in December):

a pontifical (Office-book) of coarse gold set with sapphires, emeralds, and garnets; a pectoral of gold and gems; "one great basin gilt wherein standeth a clocke with a chime"; a pair of playing tables of silver and gilt (bought by the warden!); two "antique salts" with images enamelled on the sides; the Great Seal of Henry VIII, &c. What would a pair of salts described as old in 1600 be worth to-day? The total weight converted into coin was gold 563 oz. and silver 1,307 oz. (Exch. Acc'ts 296/17).

The details of the warrant authorizing the issue of India money do not appear to have been hitherto printed, and should therefore find a place in this review:

The commission is directed to Thomas Knyvett, Richard Martin and his son, Richard Rogers, the comptroller, and Thomas Denham, provost of the moneyers. It recites the Queen's determination to cause to be struck from bullion and foreign silver certain new coins with the portcullis on the one side and the arms of England on the other, principally intended for the traffic of merchants then lately incorporated as the governor and company of merchants of London trading to the East Indies. The fineness shall be 11 oz. 2 dwt. The said new money shall "keep in number 100 testernes in the pound weight", and shall be coined in testernes of 8, of 4, of 2, and single testernes. The remedy to be 2 dwt. in weight or fineness or in both. In each pound sterling 22*d.* shall be taken up, of which 14*d.* shall be for the master-worker and 8*d.* for the fees of the other officers. No provision for the pyx. Dated 11 January, 1600-1 (Pat. rolls, 43 Eliz., part 11).

A letter from the Privy Council on 4 January, 1600-1, shows that Knyvett had complained to them that the commission given to him under the Great Seal was defective in respect of the making and delivery of the coins. A delay might cause "the breaking of the whole voyage", therefore if material omissions were

found a new commission was to be prepared and sent to the Council with all speed (*Acts of the Privy Council*). From this I assume that the order quoted above is a second and amended edition, as its date is seven days subsequent to the Council's letter.

The warden's account tells us that 2,013 lb. Troy of money for the East India voyage were coined at the Tower (Pipe Office Acc't 2030). The prescribed weight of the unit of this coinage, viz. the teston, works out at $52\frac{22}{105}$ grains, that of the eight-teston at $422\frac{82}{105}$ grains, and the two intermediate coins in proportion. Perhaps we should do well to adopt the contemporary official name of these pieces, and not describe them in terms of the crown or the dollar.

The question as to whether it was practicable and desirable to establish an English copper currency, as a substitute for small silver pieces, was discussed on several occasions during the later part of the reign. Martin had a plan, and so had other persons, but the history of the attempt is rather obscure and scarcely worth unravelling at length. Suffice it to say that we have a few patterns for copper halfpence and farthings as tangible mementoes of a scheme which did not in fact emerge from the clouds so far as England was concerned. Nevertheless, a copy exists of an undated proclamation, possibly also unpublished, which declares that no coins of silver smaller than 1*d.* and $\frac{1}{4}$ *d.* could be issued; that shopkeepers' tokens of lead and tin were forbidden after All Saints' day then next; that pledges of pure copper were to be made, the $\frac{1}{2}$ *d.* of 24 grains and the $\frac{1}{4}$ *d.* of 12 grains, which might be tendered up to a groat in value for payments under 20*s.* (Harl. MS. 698/54 and Crawford 932).

THE COINAGE OF 1601.

In this year an indenture was executed by Sir Richard Martin and his son for a general coinage, of which the chief features were a general reduction in weights and the addition of the 5*s.* and its half to the list of silver coins. The standards of fineness and the rating were unchanged.

The master-workers covenanted to strike—

The angel, half and quarter angel of 23 c. $3\frac{1}{2}$ grs. gold, of such weights that the pound Troy would contain 73 angels and £36 10*s.* 0*d.* by tale.

The sovereign and its half, and the crown and its half, of 22 c. gold, of such weights that the pound Troy would contain 33 sovereigns and one half-sovereign, and £33 10*s.* 0*d.* by tale.

The shilling, half-shilling, twopence, penny and halfpenny of 11 oz. 2 dwt. silver, of such weights that the pound Troy would contain 62 shillings and £3 2*s.* 0*d.* by tale.

Also, "the piece of five shillings" in silver, of such weight that the pound Troy would contain 12 pieces and two shillings. And the "piece of half five shillings" in similar proportion.

After the date of this indenture no money was to be coined by virtue of any previous orders, excepting only Irish and India moneys.

Dated 29 July, 1601 (Close roll, 43 Eliz.).

I notice that Mr. Kenyon does not mention the angel and its divisions as occurring after the reduction in weight, but the latest of the pyx trials shows a limited quantity of these denominations marked with the 2. The Murdoch sale catalogue (I, lot 613) included an angel with this mark; apparently the two smaller coins have yet to be found.

The graver received £12 for the patterns and puncheons of the stamps for the new pieces of 5*s.* and 2*s.* 6*d.* in silver.

It has been truly said that Elizabeth's reign is

remarkable, from the numismatic point of view, for the great variety of coins which were then in circulation, and it may be added that it was almost equally remarkable for the number of the orders addressed to her mint officers. The indenture last quoted brings the English series to a close.

THE PYX TRIALS.

It is a matter of regret to me that I cannot append a complete list of these trials, with their useful information as to privy-marks, denominations, and the amount of each group of coins found in the pyx. A perusal of my list will show that certain periods are not represented by any details whatever, viz. those during which the four marks, crescent, hand, tun, and key, were respectively used. In other cases the particulars are scanty and unsatisfying. These shortcomings are due apparently to the absence of a uniform system of recording the verdict of the jury, as was the invariable custom during Stuart times.

The position of the mill money at these ceremonies is a little uncertain. The coins prepared and struck by Mestrell's appliances are specifically mentioned on one date only, 24 October, 1561, but the privy-mark is not stated; at one subsequent trial the occurrence of the lys mark in February, 1570-1, proves that mill coins of crown-gold were then tested. What system, if any, was adopted for the trial of such pieces? Excepting the two occasions in 1561 and 1570-1, there is no available evidence of separate examinations, although the privy-marks on dated mill coins do not correspond with those on hammered money, save in one year, 1571, when the castle mark

was used as the master-worker's symbol on both classes of coins.

With regard to the marks on the hammered coinage, I suggest that a few should be renamed in accordance with the terms used by the men who devised the signs. Thus, the pheon should be described as the broad arrow-head; the coronet, as the crown; the cinquefoil, as the eglantine flower; the annulet, as the cipher. There is one other, the woolpack, which Ruding calls the woolsack, but as he does not cite and I cannot find any original authority for the latter name it must remain unproven. The three marks which occur before 1561, when the regular dating of certain coins began, may, I think, be thus apportioned; the lys and cross crosslet to Stanley's "nether mint", and the martlet to Fleetwood's "higher mint". The two former marks are known on both gold and silver hammered money, as ordered in Stanley's indentures, whereas the martlet does not occur on gold, so far as I am aware, which accords with the absence of instructions to Fleetwood to strike any coins in the higher metal. An assay of a groat with m.m. martlet yielded 11 oz. 2 dwt. 12 grs. of fine silver, or slightly better than the prescribed fineness of Fleetwood's coins. The same mark also occurs on coins of Edward VI (Henry's type) generally assigned to Southwark, in which mint Fleetwood then held office. A family of his name bore martlets as a charge on their shield.

The regulation prescribed in this reign for a trial of the pyx every three months was certainly not obeyed. Apparently there were attempts to compromise, under which, as I think, the pyx was closed, the mark changed, and a new pyx brought into use, but the

trial of the two or more pyxes was deferred until a later year. If Hawkins's "tabular view" of dates, &c., be compared with some of the dates in the list of trials it will be seen that they do not harmonize. Instances of such discrepancies occur with respect to the ermine and the eglantine marks, and I cannot reconcile them except on the rather improbable assumption that the date on the dies was not always altered immediately after the end of the civil year at Lady Day.

24 October, 1561.

Moneys in charge of Thomas Stanley, under-treasurer *inferioris cambii*—

Gold, 23 c. $3\frac{1}{2}$ grs. fine, struck between 1 January, 1560-1, and 31 August, 1561, in pieces of 30s. and 15s., amounting to £19 15s. 0d.

Gold, 22 c. fine, struck between the same dates, in pieces of 20s., 10s., 5s., and 2s. 6d., £10 10s. 0d.

Silver, 11 oz. fine, for England, struck between 1 October, 1560, and 30 November, then next, in pieces of 1s., 4d., 2d., and 1d., £24 0s. 12d. (*sic*).

Silver, 11 oz. fine, for Ireland, between 1 and 30 April, 1561, in harp shillings and groats (of which 1 lb. Troy held 80s. by tale), £9 0s. 12d. (*sic*).

Silver, 11 oz. 2 dwt. fine, between 1 December, 1560, and the date of trial, in pieces of 1s., 6d., 4d., 3d., 2d., $1\frac{1}{2}$ d., 1d., and $\frac{3}{4}$ d., £331 10s. 0d.

In charge of Thomas Fleetwood, under-treasurer *superioris cambii*—

Silver, 11 oz. 2 dwt. fine, struck between 9 December, 1560, and the date of trial, in pieces of 1s., 4d., 2d., and 1d., £390 7s. 2d.

"Mr. Blunte for the press money."

Silver, 11 oz. 2 dwt. fine. Denominations and amount in pyx are not stated, but 6 oz. contained, at the shear, 30s. by tale, which was in accordance with the indenture.

As the last memorandum proves that the mill coins were of the 11 oz. 2 dwt. standard of fineness it follows that they were made after 9 December, 1560, when Fleetwood's indenture for the upper mint ordered the use of that quality of silver. No mill coins of gold were tested at this pyx trial and presumably none had been struck, as the upper mint was not authorized to make any gold pieces.

(Exch. Acc'ts 303/21 and 23; Mem. roll, K. R. Mich. 3 Eliz. m. 282; Harl. MSS. 698, fo. 62, and 4222, fo. 35.)

13 February, 1566-7.

Gold, 22 c. Mint-marks Rose and Portcullis.

Silver, 11 oz. 2 dwt. Mint-marks Broad arrow-head, Rose, and Portcullis.

The upper mint had ceased to exist about Midsummer, 1562. Consequently the foregoing three marks and those of later date were used in the nether or lower mint, as it was called when there were two establishments at the Tower.

(Exch. Acc'ts 304/18 and Harl. MS. 698, fo. 63.)

13 February, 1570-1.

Gold, 23 c. $3\frac{1}{2}$ grs. Mint-mark Crown.

Gold, 22 c. In first pyx, mint-marks Crown and Fleur de Lys.

Gold, 22 c. In second pyx, mint-mark Lion.

The amounts of the respective issues are not apportioned to the two standards of fineness, but are stated as £172 of both qualities. The m. m. Lys in the first pyx of 22 c. indicates the coins struck by the mill, of which the 10s., 5s., and 2s. 6d. are known with this mark. This is the solitary reference to gold mill coins in the records of the pyx trials.

Silver, 11 oz. 2 dwt. In first pyx, m. m. Crown, £187 8s. 10d.

In second pyx, m. m. Lion, £24 5s. 1d.

(Harl. MS. 698, fo. 63.)

7 May, 1572.

Gold, 22 c. (no details).

Silver, 11 oz. 2 dwt. The subjects' moneys (no details).

" " The Prince's moneys " "

There was also an assay of "new Spanish money", double and single ryals, which contained 11 oz. 4 dwt. fine silver.

The "Prince's moneys" in the separate pyx were probably converted Spanish ryals, of which coins Thomas Stanley had received 7,184 lb. from the Jewel House on 13 September, 1571.

(Harl. MS. 698, fol. 56, and Add. MS. 18758, p. 42.)

30 October, 1573.

Gold, 23 c. $3\frac{1}{2}$ grs. M. m. "powdred armeyn", or Ermine spot. In angels, half and quarter angels, £57 10s. 0d.

Silver, 11 oz. 2 dwt. The same m. m. In pieces of 6d., 3d., $1\frac{1}{2}$ d., and $\frac{3}{4}$ d., £91 18s. $3\frac{1}{2}$ d.

All were struck between 19 April, 1572, and the date of trial.

(Pat. roll, 24 Eliz., part 3, m. 17 *dors.*, and Exch. Acc'ts 304/18.)

25 May, 1574.

Gold, 23 c. $3\frac{1}{2}$ grs. M. m. Acorn. First pyx; in angels, half and quarter angels, £14 17s. 6d.

Silver, 11 oz. 2 dwt. The same m. m. First pyx; in pieces of 6d., 3d., $1\frac{1}{2}$ d., and $\frac{3}{4}$ d., £15 18s. $7\frac{1}{2}$ d.

Gold, as before. The same m. m. Second pyx, £17 5s. 0d.

Silver, as before. The same m. m. Second pyx, £19 13s. 0½d.

All were struck between 1 November, 1573, and the date of trial.⁶

(Pat. roll, 24 Eliz., part 3, m. 17 *dors.*)

17 May, 1580.

Gold, 23 c. 3½ grs. First pyx. M. m. Eglantine flower. In angels, half and quarter angels, £59 2s. 6d.

Silver, 11 oz. 2 dwt. First pyx. The same m. m. In pieces of 6d., 3d., 1½d., 1d., and ¾d., £120 11s. 2½d.

These coins were struck between 29 May, 1574, and 30 July, 1578.

Gold, 23 c. 3½ grs. Second pyx. M. m. Cross. In angels, half and quarter angels, £48 10s. 0d.

Silver, 11 oz. 1 dwt. Second pyx. M. m. Cross. In pieces of 6d., 3d., 1½d., 1d., and ¾d., £89 9s. 8d.

Struck between 1 October, 1578, and the date of trial.

It will be noticed that the coins of both metals in the second pyx show reduced standards of fineness, as ordered by four of the commissions (1578-9) which have been cited on an earlier page, and that the penny was struck by virtue of the same commissions.

(Pat. roll last mentioned, and Harl. MS. 698, fol. 231.)

5 July, 1582.

Gold, 23 c. 3½ grs. M. m. Long cross. In angels, half and quarter angels, £64.

⁶ After the date of this trial, it is stated (Harl. MS. 698) that "the coinage in the mint had been stayed a long time". There was a controversy on the subject, but finally a warrant was issued on 9 July, 1577, "to set the moneyers on work again".

Silver, 11 oz. 1 dwt. The same m. m. In pieces of 6*d.*, 3*d.*, 1½*d.*, and 1*d.*, £76 0*s.* 3*d.*

Struck between 1 June, 1580, and 31 December, 1581.

Nevertheless there is in the National collection a three-pence dated 1582 and marked with the long cross.

29 November, 1583.

Gold, 23 c. 3½ grs. First pyx. M. m. Sword. In angels, half and quarter angels, £80 12*s.* 6*d.*

Silver, 11 oz. 1 dwt. First pyx. The same m. m. In pieces of 6*d.*, 3*d.*, 1½*d.*, and ¾*d.*, £41 11*s.* 0½*d.*

Gold, 23 c. 3½ grs. Second pyx. M. m. Bell. In angels, half and quarter angels, £78 2*s.* 6*d.*

Silver, 11 oz. 2 dwt. Second pyx. M. m. Bell. In pieces of 1*s.*, 6*d.*, 2*d.*, 1*d.*, and ½*d.*, £82 13*s.* 3*d.*

(Lansdowne MS. 47, No. 60.)

13 February, 158 -5.

Gold, 23 c. 3½ grs. M. m. A. In pieces of 30*s.* and 15*s.*; also angels, half and quarter angels, £106 17*s.* 6*d.*

Silver, 11 oz. 2 dwt. The same m. m. In pieces of 1*s.*, 6*d.*, 2*d.*, 1*d.*, and ½*d.*, £136 2*s.* 7*d.*

(Lansdowne MS. 47, No. 62.)

30 May, 1587.

Gold, 23 c. 3½ grs. M. m. Scallop shell. In pieces of 30*s.* and 15*s.*; also angels, half and quarter angels.

Silver, 11 oz. 2 dwt. The same m. m. In pieces of 1*s.*, 6*d.*, 2*d.*, 1*d.*, and ½*d.*

(Lansdowne MS. 52, No. 3.)

13 February, 1595-6.

Gold, 23 c. 3½ grs. First pyx. M. m. Woolsack. In pieces of 30*s.* and 15*s.*; also angels, half and quarter angels, £10 10*s.* 0*d.*

Silver, 11 oz. 2 dwt. The same m. m. In pieces of 1s., 6d., 2d., 1d., and $\frac{1}{2}$ d., £189 13s. 5d.

Gold, 22 c. Second pyx. The same m. m. In pieces of 20s., 10s., 5s., and 2s. 6d., £83 2s. 6d.

(The details as to this trial have been taken from Ruding, who does not, however, quote any authority for the facts. I have been unable to find any original evidence.)

30 April, 1600.

There is no direct record of this trial to be found, but the date may, I think, be justly inferred from a mint account which ends on the above-mentioned day. The account states that gold of the 22 c. standard and silver of the 11 oz. 2 dwt. standard were tried at the Star Chamber, the privy-mark being the anchor.

(Add. MS. 18758, p. 88.)

20 May, 1601.

As in the last case, this date can only be inferred from a mint account ending on the day in question. Crown-gold and silver coins for England, and "India money", were tried, the privy-mark being the Cipher. On the same occasion "white Irish moneys" were tested and found to contain 2 oz. 17 dwt. of fine silver in the pound Troy, but the privy-mark is not given.

(Add. MS. 18758, p. 88.)

7 June, 1603.

Gold, 23 c. $3\frac{1}{2}$ grs. M. m. "The figure of two". In angels, half and quarter angels, £3 12s. 6d.

Gold, 22 c. The same mark. In pieces of 20s., 10s., 5s., and 2s. 6d., £24 10s. 0d.

Silver (English). The same mark. In pieces of 5s., 2s. 6d., 1s., 6d., 2d., 1d., and $\frac{1}{2}$ d., £52 16s. 6d.

Silver (Irish). M. m. Mullet. In pieces of 1s., 6d., and 3d., £42 16s. 6d.

Copper (Irish). M. m. not stated. Pence and half-pence, 2 lb. 3 oz. 7 dwt. 18 grs., of which 1 lb. made 15s. 10d. by tale.

(Exch. Acc'ts. Proceedings on trials of the pyx, B'dle 3, vol. i.)

This is the only occasion, so far as is at present known, on which a copper currency was tried before the Privy Council at Westminster. It will be noticed that the trial took place in the first year of James I.

HENRY SYMONDS.

MISCELLANEA.

FLORIN ISSUE OF EDWARD III.

SIR JOHN EVANS (*Num. Chron.*, 1900, pp. 231 ff.) reviewed the dates given by various authorities for the Florin coinage, and showed that it was issued in 1344, and withdrawn in August of the same year. There still remained, however, an unnecessary vagueness and uncertainty on the question of the 1343 indenture. This may be cleared up by a brief recapitulation of the few records that relate to this issue; fuller details may be found in the Calendars of Patent and Close Rolls, and, in some cases, the documents are transcribed in full in Rymer's *Foedera*.

(1) *Close Roll*, 17 *Edw. III*, pt. 2, m. 4 d.

Indenture appointing two Florentines as masters and workers, and six citizens of London as changers, for the new gold coinage, or "Florin" coinage, which is to be issued.

Dated : 4 December, 1343.

[Ruding's "mite of a carat" there appears as $\frac{1}{8}$ of a carat; his "mytisme" is presumably a misreading of "oytisme".]

- (2) *Close Roll, 18 Edw. III, pt. 1, m. 28 d.*

Proclamation to sheriffs of London and others ordering the "Florin" coinage to be current.

Dated: 27 January (1343 O.S. =) 1344.

[Ruding's "on peril garpent" is in the transcription in *Foedera* "sur peril q'appent", a very common phrase in the documents.]

- (3) *Patent Roll, 18 Edw. III, pt. 1, m. 27.*

Mandate to the king's clerk, John de Flete, Warden of his Changes in the Tower of London, to coin two¹ gold pieces and a new silver sterling according to the form lately agreed upon by the king and the parliament.

Dated: 8 April, 1344.

[The name of Walter Dunflower seems to have crept into Ruding's version by confusion with the next entry on the roll, which begins with a pardon of outlawry to Walter Dunflower.]

- (4) *Close Roll, 18 Edw. III, pt. 2, m. 23 d.*

"Noble" coinage ordered to be made. Acceptance of the Florin to be optional.

Dated: 9 July, 1344.

- (5) *Close Roll, 18 Edw. III, pt. 2, m. 18 d.*

"Noble" coinage ordered to be current. Florin withdrawn from circulation.

Dated: 20 August, 1344.

The slight confusion which produced a theory that the Florin coinage was ordered in 1343, but not coined until another order was issued for it in the following year, is due to Ruding's misunderstanding of the first of these records, the indenture of 4 December, 1343. This is simply an indenture of contract, the purport of which is to appoint certain officials for the making of a new issue, here fully described, which is in contemplation. It is not a mandate, as Ruding seems to have thought, ordering these officials to make the new coinage.

The history of the issue is merely this:—On 4 December, 1343, officials were appointed who were to make the new coinage; on 27 January, 1344 (New Style), the proclamations

¹ Mistake of the Calendar? *Foedera* gives "trois maneres de monnoies d'or"; the description of the "florin" issue follows.

of the new currency were issued; on 8 April letters patent were sent to the Warden of the Changes ordering its issue; on 9 July it ceased to be coined, the Noble being ordered, and its acceptance in currency was made optional; on 20 August it was withdrawn from currency. Thus its actual issue lasted for three months only, from 8 April to 9 July, 1344.

G. C. B.

GERMAN WAR MEDALS.¹

AN Amsterdam sale-catalogue, which has just reached this country, is calculated to throw a curious side-light on the psychology of the war. It contains a fairly complete collection of the different numismatic memorials that can be directly associated with the present abnormal condition of Europe. Money of necessity, of course, figures largely. Usually it is of paper; but coinages of iron, zinc, and aluminium are also represented. The human interest, however, is mainly grouped round the medals, an astonishing number of which have already been struck in the territories of the Central Powers. More than 450 of these have come from Germany, where the average weekly output can hardly be less than four or five. Nothing at all comparable to it has been witnessed since the early eighteenth century, when, in the absence of a newspaper Press, the medal was in constant use as a means of endeavouring to influence public opinion. To understand this fresh outburst of activity one has to remember that in Germany the tradition had never wholly died out. During the crisis of 1911, for instance, wide circulation was given to a medal that left no doubt as to the real ambitions of the party that was ultimately responsible for the dispatch of the *Panther* to Agadir. The obverse showed a bust of the then Imperial Chancellor, Herr von Kiderlen-Waechter, with an appropriate inscription. On the reverse was a distant view of the African coast, with a gunboat in the foreground, and the significant legend "West-Morocco

¹ Reprinted from the *Scotsman* of April 11, 1916, with the Editor's kind permission.

German". To men who cherished such confident expectations the humiliation of withdrawal must have been bitter indeed.

Not a few of the Austrian medals in the Amsterdam list have been issued by the Red Cross authorities, or by charitable organizations whose funds were to benefit by the proceeds of the sale. They are thus so far analogous to the paper flags with which the experience of many Saturdays has made the average Briton familiar. Whether any of the German examples were meant to serve a similar purpose, it is not possible to say. As a rule, there is nothing to indicate by whom they were struck. What is certain is that they have been produced with the cordial approval of the Imperial Government. Many of them, including the great majority of those of the largest size, are of bronze; and raw material so precious in the making of munitions would never have been sacrificed save for an object that was believed to bear immediately on the successful prosecution of the war. Their true function is to keep up the *moral* of the civil population. It is this that renders the designs which they display so illuminating. By and by they will be historical documents of very substantial value, and it is to be hoped that steps are being taken to secure complete sets for some of our public institutions, such as the British Museum. In the meantime it may be instructive to note one or two of the salient points.

The medals vary greatly in size, some of them having a diameter of more than 4 inches. The largest homogeneous group is a series known as "tokens of victory", and already numbering well over 100. They are small medalets of silver, about half an inch in diameter, evidently intended to be worn as personal ornaments. On the obverse the device is invariable—a winged Victory holding a sword and a laurel wreath—while the legend is either "God blessed our brave armies", or "God blessed the allied armies". The reverse bears a simple inscription indicating the occasion of the issue. The earliest of all is "Bombardment of the naval harbour of Libau by the cruisers *Augsburg* and *Magdeburg*, 2nd August 1914"; and the earliest relating to the operations on land is "Capture of Liège by General von Emmich, 7th August 1914". What we know as the Retreat from Mons is summed up as "The British Army and three French divisions defeated at St. Quentin by von Kluck, 28th August 1914". Sometimes details are given, as "Surrender of Maubeuge: 40,000 prisoners and 400 guns captured:

7th September 1914", or "Prasnysz stormed: 10,000 prisoners and 20 guns captured: 24th February 1915". Other examples, selected at random, are: "German naval airships bombard fortified stations on the English coast during the night of 19th-20th January 1915"; "Heroic exploits of the cruiser *Emden* (Captain v. Møller), 2nd August to 9th November 1914"; "Failure of French attempts to break our line at Les Eparges, 20th to 27th June 1915"; "Battle in Gallipoli: English and French defeated at the Dardanelles, 4th to 6th June 1915"; "Second great battle at Gorizia: defeat of seven Italian army corps, 18th to 27th July 1915". The whole series being German, the last two quotations show how completely Germany identifies her own cause with that of her allies. It is true that a fair proportion of the "victories" are somewhat shadowy. Thus, "Turkey proclaims a holy war, 12th November 1914", and "Bombardment of Scarborough and Hartlepool by German ships, 15th December 1914", come perilously near the ridiculous. But, when all is said and done, the circulation of these medalets can hardly fail to maintain such an atmosphere as the military leaders desire. They are highly useful as a seasoning for war bread. Incidentally, it is worth noting that there is nothing to celebrate the sinking of the *Tiger*, a very suggestive omission.

Of the larger medals, a certain number can best be described as political manifestos. For these a bust of the Kaiser is the favourite obverse. The designs on the reverse are usually commonplace, the changes being rung on such stage properties as an eagle, a laurel-wreath, and a hand holding a drawn sword. It is the inscriptions that are important here, and one encounters again and again, "I know no parties now; for me you are all Germans", or the audacious, "Reluctantly and in self-defence, with a clear conscience and a clean hand, we grasp the sword". Even the Imperial Chancellor's famous dictum about "hacking a way through" is immortalized, the obverse in this case being a bust of von Bethmann-Hollweg himself. Much more varied is the interest attaching to the purely military medals. There the passion for hero-worship is allowed the fullest scope. With the notable exception of von Moltke, every General who has been before the public eye either on the Western or on the Eastern front reappears more or less frequently in the medallion portrait gallery. The Crown Prince is naturally prominent, his achievements being perpetuated on huge memorials of iron, as well as on smaller ones of silver and

of bronze. But, as one might expect, the really popular figure is von Hindenburg, who is hailed as "Hammer of Russia, Saviour of Prussia". He has already between thirty and forty medals to his credit. For the most part the reverses of these are rather obvious and disappointing—a badly mauled bear, Hercules and the Hydra, and the like. Perhaps the most remarkable is one consisting simply of a rhyming inscription which endeavours to associate von Hindenburg and the Almighty without disrespect to either; the leading idea is that "unser Gott", too, is "ein feste *Burg*". The fate of von Spee and his two sons at the Falkland Islands has evidently made a deep impression. But it is characteristic that on the principal medal relating to the incident an effort should be apparent to keep alive the myth that their destruction was compassed by an armada of super-Dreadnoughts. Great stress is laid on the fact that the German squadron was "tiny". No such consideration is meted out to Cradock on the medals that celebrate the sea-fight off Coronel, or Santa Maria, as the Germans call it. The suggestion is rather the other way about. It is German "ships" that annihilate a British "squadron". But one does not need to be a General or an Admiral to secure the attention of the designers of medals. There are nine or ten referring to the career of von Weddigen, the "bold viking" who sank the three *Cressys*, and five or six glorifying von Müller, of the *Emden*. These are intelligible. But it is odd to be confronted with the effigy of Dr. Helfferich. One can hardly imagine the British taxpayer spending money on medals with the image and superscription of Mr. McKenna. Another strange apparition is Professor Dr. Rausenberger, the inventor of the 42 cm. howitzer, the reverse showing one of the howitzers in action against Antwerp. Even stranger is a quaint medal dedicated solely to the honour of the bomb. It is fair to say that one looks in vain for signs of any corresponding evidence of pride in the cylinder of asphyxiating gas or the jet for spraying liquid fire.

The reverses of the military medals are often very enlightening. Von Kluck as a hero seems to belong to the dim and distant past. But it is interesting to note that, if he had fulfilled the hopes of some of his admirers, the fate of Louvain might have been shared by a town yet more ancient and famous. The reverse of one of his medals shows a naked warrior on horseback, waving a blazing torch. In the distance is a city in flames, and the legend is "To Paris". Von Tirpitz is clearly looked upon as the high priest of the

"Gott strafe England" cult. It is with his bust that the curse is usually associated, although in one case it is fathered upon Bismarck. In another instance, the ex-Grand Admiral's portrait is surrounded by the genial sentiment, "Every German ship is a mortal dart in Britain's heart", while the reverse has a representation of a submarine at work, accompanied by the pious aspiration, "Watchword: Sink the ship, but save the crew". The activities of the naval airships are well adapted for the provision of picturesque subjects. Thus, an unwieldy medal of iron, about $4\frac{1}{2}$ inches in diameter, has a bust of Count Zeppelin on the obverse, and on the reverse, "Air attack on London, 17th and 18th August 1915". Zeppelins are seen hovering over the Tower Bridge, while in the background are buildings set ablaze by incendiary bombs. In the light of this and similar sketches it seems far from improbable that ere now some medallist artist may be busy on a well-known landscape in the South-East of Scotland. "Farthest north, 2nd and 3rd April 1916", would be quite an attractive title.

It is tempting to linger among the military medals, but space must be left for a brief allusion to another group, for which it is not Germany's own heroes, but her enemies, that furnish the material. This is a revival of the satirical medal, so much in vogue two centuries ago. A typical example has on the obverse the busts of Sir Edward Grey, M. Delcassé, M. Isvolsky, and Signor Salandra, the first-named holding a medallion containing the portrait of the late King Edward. Beneath is the legend, "The gang of incendiaries". On the reverse is a chariot, inscribed "March to Berlin, Vienna, Constantinople". In it stands a figure of Falsehood, who is scattering such bulletins as "Germany on the point of starvation", "Revolution in Berlin", "Rheims Cathedral in ruins". Few of the obvious mistakes and weaknesses of Britain escape the lash, and the same may be said of her Allies, although it does seem a trifle undignified to scarify the King of Montenegro for his flight. Even President Wilson has a sarcastic medal all to himself as the champion of "Liberty, Neutrality, Humanity". The reverse shows Uncle Sam pouring out guns and shells for the Allies. Titles like "The Pilgrimage to the Balkans" or "The Sleep-Walkers on Gallipoli" tell their own tale. On the whole, it must be said that the satire is fair enough, in the sense that it does not transgress the limits of decency observed, say, by the average *Punch* cartoon. So long as the Indian troops do their duty in the field, we can afford to

smile when their landing at Marseilles is treated as the arrival of a circus.

But there is one piece whose existence it would be difficult to justify at the bar of the most ordinary human feeling. So amazing is it that one does not care to dwell on the lesson it conveys. For a parallel we must go back three and a half centuries to the silver medal which shows avenging angels dealing death to the Huguenots on the Eve of Saint Bartholomew, 1572, and even then the cynical savagery remains unmatched. The description speaks for itself. On the obverse is a long queue of civilians waiting their turn at a booking office labelled, "Cunard Line". Above their heads are the words "Geschaeft ueber Alles", a free translation of "Business as usual", with a side-glance (by way of contrast) at "Deutschland ueber Alles". Tickets are being handed out to the foremost—not, however, by a uniformed official, but by the grim figure of Death. The reverse shows a large four-funnelled steamship disappearing beneath the waves. Above are the words "No contraband!" Beneath is the inscription, "The liner *Lusitania* sunk by a German submarine, 5th May 1915". It is odd that there should be a blunder in the date. The *Lusitania* was torpedoed on May 7th. It should be added that the good taste of the artist is fitly matched by his knowledge of naval architecture and his sense of historic truth. He has given the liner a stem such as might have been appropriate for a battleship, and he has piled her deck with munitions of war, including a fully-rigged aeroplane.

V.

A DEKADRACHM BY KIMON, AND A NOTE ON GREEK COIN DIES.

(PLATE IV.)

A SPECIMEN of a medallion from a fractured obverse die by Kimon, which was presented to the British Museum two or three years ago, has already been published by Mr. Hill in the *Numismatic Chronicle* (1913, p. 260). To the five examples there collected by him we may add one from a Paris Sale (May 9, 1910, No. 212) and another from the G. R. Smith Sale (Sotheby, July 10, 1890, No. 481) now in the McClean collection, Fitzwilliam Museum. The interest of the McClean coin (Pl. IV. 11)¹ lies in the fact that it shows the fracture at an earlier stage than any of the other examples, since here the hair is left intact. A closely succeeding stage is found in the Paris specimen published in *Rev. Num.*, 1913, Pl. i, No. 174, where the break runs round the lower part of the hair without touching the space between the hair and the dolphin. This space is partly filled up in Hirsch Cat., xxxii, No. 316, and completely filled in the British Museum specimen and that mentioned above from a Paris Sale. The last two might almost be successive strikings and

¹ The coins illustrated on Pl. IV are in the Fitzwilliam Museum. All come from the McClean collection with the exceptions of No. 1, which is in the Leake cabinet, and No. 19, which is in the general museum collection. See notes 2 and 8 below.

are rather earlier than the two remaining examples, Hirsch Cat., xxxii, No. 317, and Late Collector Sale, Sotheby, 1900, No. 153, between which little distinction can be drawn, though the ends of the dolphin's tail, still visible in the Hirsch specimen, may not merely be off the flan but obliterated by a slight extension of the fracture in the Late Collector coin. I have not been able to realize Mr. Hill's wish that a specimen from the die before it was fractured might be found. His suggestion that the die broke at the outset is possibly correct, although this view is vitiated to some extent by the appearance of the M^cClean coin showing the fracture at an earlier stage.² On the other hand,

² There are three coins in the M^cClean Syracusan series signed by Eukleidas and Euainetos (Tudeer, Group 5, Nos. 35-7), all from the same obverse die. The third shows a large fracture between Nike and the charioteer (Pl. IV. 12 and 13). Three earlier stages of this fracture are illustrated in Tudeer, *Tetradrachmenprägung von Syrakus*, Pl. vii. 2 α , β , γ . See note 33 below.

Pl. IV. 3 is a coin of Poseidonia with an extensive fracture to the r. of the obverse and a crack running across from l. above to r. below. This is a later specimen from the same die as Strozzi Catalogue, Pl. vi, No. 1052, where the fracture to the r. has just started but no crack has yet occurred. Pl. IV. 4 shows the reverse of another coin of this city with a thin crack running across the legs of the bull and the \odot below. Strozzi Catalogue, No. 1051, shows the development of this crack and also a fracture right across the inscription which had just started on the M^cClean specimen as a ligature between the first two letters $\Pi\Omega$. Before finding the Strozzi coin I had regarded the thin crack as a rope tethering the bull. When the two were compared Mr. H. Chapman first noticed that the crack, passing as it does over the \odot , had been wrongly interpreted by me.

Pl. IV. 6 and 7 show two obverses from the same die, again of Poseidonia, with a fracture across the body of Poseidon from the r. shoulder down the l. leg. For this line of fracture compare the magnificent stater of Heraclea (Pl. IV. 10), where small breaks also appear on the crest of Athena's helmet. A break in both dies is also illustrated by the coin of Cumae, Pl. IV. 9. Pl. IV. 5 is the reverse of a coin of Hyria.

it is supported by the fractured reverse of a Velian didrachm to be mentioned below, where on all the specimens known to me this fracture is in an advanced stage although the die seems to be used with the same obverse, intermediate between two other reverse dies.³

The occurrence of these seven specimens struck from a die weakened by a large fracture of this nature would seem to be of importance from the technical standpoint. It would be idle to try to reckon how many medallions were struck from it. At the same time, our knowledge of the die-cutter's art, of the material in which he worked and of the longevity of an ancient die, is very obscure, and any detail likely to throw light on these matters may not be thought irrelevant. The latest research has shown that the old view that few examples occur of types coming from the same die stood in need of material correction.⁴ Yet so recently as 1906, Mr. H. B. Walters, in his *Art of the Greeks*, p. 227, could echo the earlier words of Hill: "Instruments made of soft metal naturally wore out very quickly, and it is indeed not common, before imperial times, to find two coins from the same die, though commoner than at first sight appears" (*Handbook of Greek and Roman Coins*, p. 150). Here we may postulate two hypotheses which, so long as it was supposed that the occurrence

³ For this and other Velian didrachms on Pl. IV see notes 7 and 8 below.

⁴ I need only mention such works as Regling's *Terina* (*Winckelmannsprogramm*, 1906) and Tudeer's *Tetradrachmenprägung von Syrakus*. Mr. Hill, whose earlier book I have quoted above as the most convenient reference, has on many occasions since then called attention to similarity of dies. See notes 9, 32, and cp. note 11 below.

of two or more specimens from the same die was extremely rare, were comparatively unimportant. *First*: that however many specimens from one die are known we are justified, in ordinary circumstances, in assuming that they only form a fraction of the total issue.⁵ *Second*: that a factor in considering the life of an ancient die will be the difference in condition between the earliest and the latest extant examples struck from it.

We may notice, then, that in the seven examples of the Syracusan medallion four, if not five, stages of the fracture are shown. And when the close relation of the last four coins to one another is considered, the conclusion that several stages in the break and many specimens of these stages have been lost is at least arguable. Indeed, we can hardly suppose that seven consecutive strikings of a particular coin should survive, and if we could suppose that so high a fraction as one-half of the total number struck between the first and the last extant example was preserved, we should have fourteen specimens in the complete sequence between the M^cClean and the Late Collector coins. But on comparing these we find that, apart from the rubbing down in the high parts of the relief which is occasioned by the wear of time and is accidental, there is but little difference apparent in the

⁵ For example, five staters of Melos with the pomegranate obverse were known to Babelon when his *Traité* was published in 1904. In 1908-9 the famous find of seventy-nine staters, embracing thirty-one different reverse types, was made quite accidentally in the island. When the Romans took Tarentum in 272 B.C. 80,000 lb. of uncoined gold were among the spoil. How many coins, afterwards melted down, may they not have taken at the same time?

sharpness of the lines. The die was in practically the same brilliant condition when the Late Collector coin was struck, though it is hardly fanciful to suppose that at least a dozen and probably many more specimens had been struck between it and the M^cClean example. Apart from the increasing size of the fracture there seems to be no reason why many more pieces should not have been struck from this same die, in so far as its general condition is considered. Moreover, the seven coins by themselves prove that, whatever the cause of the fracture, the die can hardly have been made of a soft metal when it could still be used, in its weakened condition, to such good purpose, and the outline of the fracture remains clear and sharp.

To reach any positive conclusions on this question is perhaps impossible, and would, in any case, involve a long and detailed research. My desire is simply to restate opinions which at present hold the field, and to show that they can hardly be correct even in broad outline. Such an examination of the dies as that given in Regling's work on Terina is in itself sufficient evidence. As an illustration we may take his obverse die MM. He cites about twenty-four examples of this die, and additions might be made to his list, notably the two examples published by Evans in *Num. Chron.*, 1912, p. 46. In over a dozen specimens which I have seen in the original or in illustration one could say that Evans's specimens were the earliest and a coin in the Leake collection the latest. But it would be absurd to suppose that our twenty-six specimens are consecutive strikings and not rather the remnant of a large issue from this die. Another coin of great interest in this question is the Velian didrachm

showing the three-quarter-face head of Athena signed **ΚΛΕΥΔΩΡΟΥ**. I believe that the eighteen specimens of this obverse which I have been able to find all come from the same die, though this coin is not often in good condition and it is hard to judge. It would not, however, be surprising to find that there is only one die of this type. Those known to me are the following:

B. M. 70*, 71, 72; Leake 24 and 25; McClean*; Warren 121*; Hunter 63, 66*; Sale Catalogues, Paris, December 19, 1907, No. 46; Rome, April 6, 1908, No. 100*; Milan, May 13, 1912, No. 299*; Strozzi, No. 1134; Stamford, No. 16*; Maddalena, Pl. iv. 5; Hirsch Catalogues, xiii, No. 188, xix, No. 65*, and xxx, No. 253.

Probably several other unillustrated examples occur in the catalogues,⁶ and we may again ask, without being able to suggest an answer, the number originally issued of which these specimens can have formed but a fraction. Moreover, the eight specimens marked with a star are struck from the same fractured reverse die, three main stages of the fracture being noticeable. The arguments against supposing that the dies were made of soft metal apply here with added force because in this case the upper die or punch, on which the hard work fell, is fractured. Yet we cannot assume that no more than these eight examples were struck when the die was in this condition. At the same time it is worth while noticing that the obverse

* Thus Montagu Sale (3), No. 28, must have offered a very poor specimen of this coin, probably with the reverse badly broken, as it was sold with seven obols of Velia and Heraclea for £1 3s.

was used with at least two other reverse dies. The order appears to be as follows:

- (1) With letters A above >E (= KAEY) between hind-legs.⁷
- (2) The fractured die with >E between hind-legs.⁷
- (3) Φ below lion, >E as before. (The lettering on the Milan specimen when compared with Hunter, Pl. viii. 16, precludes the idea that (2) and (3) are identical.)

We should expect to find the reverse dies lasting for a shorter period than the obverse. But if the old idea that dies were produced with great rapidity partly because they were worked in a soft metal were correct, it is hard to understand why an artist who signed his work should so often be content with a badly broken die of a commonplace type like the lion of Velia, especially when the die concerned is only of the smaller didrachm size.*

⁷ (1) Pl. IV. 1 (a Leake coin); (2) Pl. IV. 2.

* At the same time we may notice that the Velia mint seems to have been unfortunate in its reverse dies, which often began to break round the side. Of 54 didrachms in the McClean collection at least ten show the beginnings or developments of fractures there. A selection of these is given on Pl. IV. 14, 15, 16, 17, 18. But in the same collection 56 didrachms of Neapolis and 66 staters of Metapontum (of the period c. 400 B.C. onwards) yield no example, while 94 staters and distaters of Thurium give only three. Of the Velian examples, four occur in 38 coins without the linear circle, while six occur in 16 coins with the border. As the border is not employed on the coins of Neapolis, Metapontum, and Thurium, it might be thought that a linear circle proved a source of weakness in the die. If, however, this counted for very much we should expect to find more frequent breaking of the die in the sunk borders of the older coins of Metapontum, Croton, Poseidonia, &c., than actually occurs so far as I can judge. There are only three or four examples of slight fracture in the thin fabric coins of these places in the McClean collection. A specimen

There is one other coin which I should like to give here owing to the brilliant condition of the thirteen specimens known to me.⁹ This is the silver coin of fifteen litrae ascribed to the reign of Hiketas at Syracuse which has the head of Persephone (symbol, bee) and a chariot for types. The McClean specimen is from the Huxtable and Yorke-Moore collections. From the same die come B. M. 436, reproduced in Hill, *Coins of Ancient Sicily*, Pl. xi. 18; B. M. 437; Sale Catalogues, Ashburnham, No. 59; Late Collector, No. 163; Whitehead, No. 9; Delbeke, No. 68; Benson, No. 378; White-King, No. 82; Paris, May 9, 1910, No. 228; Hirsch Catalogues, xi, No. 135, xv, No. 1252, and xxvi, No. 112.¹⁰ These thirteen specimens might

of a thick fabric Croton stater with *incuse* type, the border of which is so broken, is given on Pl. IV. 19 (from the ordinary Fitzwilliam collection), and another of slightly later date with both types in relief is also illustrated (Pl. IV. 20). It is not surprising to find dies fracturing where the design comes close to the edge of the flan, as does the Nike's wing on coins of Terina (Pl. IV. 8).

⁹ I have been content to give examples which I had collected myself for another purpose. They are by no means the most striking proof that could be adduced, and should any reader see evidence of special pleading let him consult Tudeer's *Tetradrachmenprägung von Syrakus*. Tudeer's obverse dies 10, 11, 12, 13, 14, 15 yield 34, 24, 46, 14, 53, and 48 specimens respectively, these being signed by Euainetos, Eu . . . , and Euth In view of these numbers the fact that he can give only two or three examples, sometimes only one, of some other dies proves nothing as to the durability of the metal forming the die, though it may conceivably have some bearing on the further question as to what that metal was. See below. Compare also note 32.

¹⁰ I have omitted from this list a very fine specimen of the obverse illustrated in Head, *Coins of the Ancients*⁴, Pl. 35, No. 33. Mr. Hill has kindly informed me that some disarrangement of casts must have occurred there, for the obverse is that of a coin not now in the British Museum, if it ever was, while the reverse is that of B. M. 438, mentioned below in note 11, No. 5.

all be described as in brilliant condition, the Ashburnham coin perhaps being the weakest. Of course the highest parts of the relief are sometimes worn down, but this arises from wear and does not affect the argument. But if thirteen examples—and again we must guard against assuming that these are consecutive striking—are known in this brilliant condition, how many coins can we suppose that the die was capable of producing? The fact that in many cases it is hard to find several examples of coins struck from the same die does not seem to me so good an argument for maintaining that the die rapidly wore out as for believing what is on other grounds credible, that only a small fraction of them has survived to our day.¹¹ At the same time we must remember that in its broadest aspect this question can at present only be surveyed from the illustrations in various catalogues which naturally tend to reproduce only the rarest and finest specimens.

It may be objected that as the obverse dies were

¹¹ In investigating this subject of ancient dies one soon finds that while a fair number of specimens struck from one die survive only one or two from another die of apparently the same period can be found. There may be some reason beyond mere chances of survival, and the point is well illustrated by this 15-litrae piece. While the variety with the bee occurs in over a dozen specimens, there are three other varieties with different symbols which appear to be of extreme rarity. From the same sources (English collections and the sale catalogues at home and abroad for the past thirty years) I have only been able to collect the following five specimens of these three varieties:—(1) With symbol X. British Museum 440 = Head, *Num. Chron.*, 1874, Pl. x. 4. (2) *Same die*. O'Hagan Sale, No. 243 = Bunbury Sale, No. 484. (3) With symbol bucranium. B. M. 439 = Head, *Coins of the Ancients*, Pl. 35, No. 4. (4) *Same die*. Hunter, Pl. xvii. 19. (5) With symbol amphora. B. M. 438. See also note 22 below. Compared with this silver coin the gold pieces of Hiketas are common. I have noted about sixty examples.

sunk in the lower anvil and the metal forced into them by pressure from above, they might be expected to last longer than the upper or reverse die which did the striking, and that the true test will be to see how long a reverse die lasts. We may at once admit that, generally speaking, examples of types from the same reverse die are not so numerous as those from obverses.¹² This would naturally be expected for the technical reason just given. To this we may add the primitive methods of striking in the absence of machinery, the insufficient guarding of the die as judged by modern standards, and the extraordinarily high relief of ancient coins which must have necessitated much hammering up to get the full design reproduced.¹³ This necessity is reflected in the marked concavity of the reverse type which persists throughout the period of the finest Greek art,¹⁴ and is not necessarily a mark of very archaic coins. Still, the broken reverse of the Velian didrachm has been mentioned, and the reverse die of our seven Syracusan medallions occurs at least four other times.¹⁵ One of the finest reverse

¹² Tudeer has collected 37 obverse and 73 reverse dies for the signed tetradrachms at Syracuse, apart from a few imitative and plated coins. See also note 32 below.

¹³ The number of double-struck coins which occur shows that one blow would be insufficient.

¹⁴ e.g. Thurian tetradrachms, staters of Thebes, the Chalcidic League, the Opuntian Locrians, Stymphalus, Pheneus, Argos, and Elis. But the shape of the blank before striking had much to do with the need for prolonged hammering.

¹⁵ Mr. Hill, *op. cit.*, has shown that it was used with a new obverse die in the medallion published by Evans in *New Chron.*, 1891, Pl. x. 1, in Hirsch Catalogue, xxxii, No. 313, and B. M. No. 204. If Du Chastel, Pl. xvi, No. 143, is the same as Pl. 12, No. 143, in the edition before me, I doubt whether that specimen is from our die, and I uphold Hill's objections to the specimen in *Rev. Num.*, 1913, Pl. i, No. 173, which seems to me different in

types at Terina is that showing the nymph drawing water from the lion's-head fountain set in the wall. From this die Regling gives twenty-three examples (55). (The obverse is known to him in twenty other coins, giving a total of forty-three from the obverse die.) But the most striking examples come from the period of the signed tetradrachms at Syracuse because on these coins the heads in high relief still form the reverse type and were therefore subject to the hardest usage.¹⁶ But Tudeer's reverse dies 12, 13, 14, and 15, mostly signed **EVMHNOV**, yield 16, 14, 2, and 18 specimens, while dies 23, 24, 25, 26, 27, and 28, which are signed by Eukleidas, Euainetos, Eumenes, and Phrygillos, are known by 38, 20, 24, 12, 7, 27, and 17 coins respectively. We should expect if dies were cut to-day in the high relief of a Syracusan medallion or of a Terina didrachm, and coins were

essentials rather than in details. On the other hand, in a more recent Hirsch Catalogue (xxxiv, No. 196) this reverse is used with yet a third obverse. There is much evidence to prove that no rigid rule ordered the workmen to keep two dies together until one was worn out.

¹⁶ On this question of hammering compare Mr. W. J. Hocking in *Num. Chron.*, 1909, p. 6: "A third necessity for mechanical aid was occasioned by the high degree of embossing or relief which was given to the steel punches (by the early Renaissance artists). To impart a corresponding relief to the medal, a percussive blow or blows with the dies must be struck of far greater force than could be obtained by means of a hammer. . . . The balancier was invented to fulfil these conditions of effective striking. . . . To minimize the amount of force required to bring the design into adequate relief, the size of the medals was reduced, the average diameter being decreased from about 4 inches to 1½ inch." We may notice here that a Syracusan medallion is just about 1½ inches in diameter. I take this opportunity of thanking Mr. Hocking for kindly supplying information concerning modern methods which enabled me to get a far better idea of the difficulties which hindered the ancient craftsman than I could otherwise have obtained.

struck from them under the same conditions as from a pair of modern dies, that the latter would last longer. But additional mechanical disadvantages shortened the life of an ancient die.

What these dies were made of can only be settled by that positive evidence which is unfortunately lacking.¹⁷ Writers interested in this matter continually speak of bronze, hardened bronze, or some soft metal.¹⁸ Some seem to use these terms as synonymous, though how true it can be to describe hardened bronze as a soft metal, or any die from which over fifty extant specimens are known, as quickly wearing away, is a very debatable question. But this theory of a soft metal rests on the mistaken belief that it is rare to find specimens from the same die, and because it is thought to afford an explanation for the great variety which certainly existed in ancient coins. This is

¹⁷ The best known Greek die is that for a coin of Berenice II. It is said to be of bronze, but whether this applies to the actual design I cannot say. Its authenticity has been doubted. The die for a coin of Faustina II "is made of soft iron, except for the part which contains the actual design, which is in steel. Other dies exist of hardened bronze. A few made for Gaulish coins are entirely of bronze or soft iron. It is doubtful whether any of the coin dies supposed to be Greek can be regarded as genuine" (Hill, *Handbook*, p. 150). More recently, Dattari has published a bronze die found in Egypt, probably local work of the fourth century n.c., imitating Athenian tetradrachms, and Svoronos has republished it with a very interesting analysis by K. D. Zengeles (*Journ. Int. Num.*, 1905, viii, p. 108; *Corolla Numismatica*, p. 285).

¹⁸ Our modern bronze coins contain 95 % copper, 4 % tin, 1 % zinc. Mr. Hill gives as high a figure as 16 % of tin for some ancient bronze coins (*op. cit.*, p. 15), and there would presumably be small amounts of other metals besides the tin. The question as to how coins of this hard alloy were struck may still be put, though the Greeks are known to have used bronze containing as little as 67 % of copper. Mr. H. Chapman reminds me that the difficulty is increased in the case of restruck bronze coins where the object is to obliterate the old type as completely as possible.

maintained by the most systematic writer on ancient craftsmanship, and his words have since received no substantial modification (see, however, note 33 below): "Der gravirte Prägestempel bestand bisweilen aus gehärteter Bronze, in der Regel aber wohl aus Eisen; indessen scheint es nicht, als ob man sich gehärteten Stahles dazu bedient hätte, und der Umstand, dass namentlich in Griechenland öfters eine einzelne Stadt im selben Jahre Münzen mit verschiedenen Stempeln ausgab, spricht dafür, dass die Prägestöcke von nicht sehr dauerhaftem Material waren und sich schnell abnutzten" (Blümner, *Technologie*, iv (1887), p. 259). Now it seems to me that a very important alternative reason why cities should issue coins from many different dies in the same year has been overlooked. Briefly, it was their method for expediting large issues of coin. When once the artist had cut the die the actual striking of the blanks had still to be done by hand. This would be a comparatively slow business, necessitating a certain amount of care in fixing the blanks, keeping them in position without a collar and striking up the high relief. To ensure a reasonable output a number of dies would have to be in use simultaneously. The ancient authorities would therefore order a dozen dies or more to be cut and use them all at the same time. The modern practice is for the artist to model his design in plaster. His work is transferred to steel by mechanical means and exact copies are multiplied by machinery to the extent required by the coinage, the dies being made in hardened steel. Emulation between artists employed by the same mint may have helped to increase the number of designs, and if the artist had some control

over his work after it had been in actual use it may be supposed that he sometimes withdrew a die with which he was displeased before its use was over. Such an authority is to be presumed from those cases where the artist has touched up a die or even added a symbol in the field.¹⁹ Moreover, although the ancient die-sinkers were also gem-engravers and the technique of these two arts is the same, we do not hear of any die-engraver being a famous sculptor or bronze founder. Their work was strictly limited to these so-called minor arts, and in consequence the time at their disposal for cutting dies would be very much greater than in the case of an artist working in every domain like Benvenuto Cellini or of the modern artist who is only called in occasionally to make a design. The delicate instinct of Greek genius was opposed to omniscience in the arts. Indeed, the cleavage is wider. The great sculptors are all of the mainland, where epic and tragedy flourished; the great die-engravers come from Magna Graecia, the home of bucolic poetry.²⁰

Even if we allow a certain latitude in the use of the phrase "soft metal which quickly wore out, wore down and broke",²¹ we should still be at a loss to explain why so many specimens from the same die

¹⁹ As occurs in coins of Catana (Imhoof Blumer, *Monnaies grecques*, p. 16, Nos. 13, 14), Tarentum (Evans, *Num. Chron.*, 1914, p. 20 of the Proceedings of the Society), Terina (Evans, *ibid.*, 1912, p. 59), and others.

²⁰ As illustrating a possible disregard in Greece proper for the small, minute work on coins, Professor Ridgeway once drew my attention to Aristotle, *Poetics* vii. 8 τὸ γὰρ καλὸν ἐν μεγέθει καὶ τάξει ἐστὶ, διὰ οὗτοι πάρα πολλοὶ ἀν τι γένοιτο καλὸν ζῆλον (συγχέεται γὰρ ἡ θεωρία ἐγγὺς τοῦ ἀναισθήτου χρόνου γαυρομένη) οὗτοι παρμύγεσθαι.

²¹ Gardner, *Types of Greek Coins*, p. 20.

show so little difference in die condition. I must conclude that during the most flourishing period of Greek die-engraving the dies were cut in some very hard material, and that if that material were hardened bronze it is quite wrong to describe it as a soft metal which quickly wore down. The question as to whether it broke easily is entirely different, as this depends not on whether the metal was soft or hard, but whether it was brittle.²² This difference is of capital importance and may help to explain why a smaller number of specimens survives from some dies; not because the metal was soft and the design wore down, but because the art of tempering metal was imperfectly understood and the production often brittle. I venture to think that we may in this way throw some light on a disputed passage in Sophocles, *Antigone* 474 seqq.:

καὶ τὸν ἐγκρατέστατον
σίδηρον ὅπτιον ἐκ πυρὸς περισκελῇ
θρανσθέντα καὶ ραγέντα πλείστ' ἂν εἰσίδους.

Creon says that "over-stubborn spirits are most often humbled; 'tis the stiffest iron, baked to hardness in the fire, that thou shalt oftenest see snapped and shivered". I quote the late Professor Jebb's translation. Jebb does not use the word "steel", but in his note gives "tempered to hardness" for ὅπτιον . . . περισκελῇ. Of two explanations which he offered for the passage, Paehler²³ regarded as more probable his view that

²² Brittleness, I maintain, is the cause of our fractured dies, and very largely of the inequality in numbers preserved from dies noticed above in note 11.

²³ Paehler, *Die Löschung des Stahls bei den Alten* (Wiesbaden, 1885), p. 17. I only know this work in so far as it is quoted by Blümner and Jebb, and had arrived at this explanation of the passage in the *Antigone* independently.

steel too strongly heated goes wrong in the fire, and is in consequence brittle and easily broken by blows of the hammer. With this I entirely agree, except that I should substitute the word "iron" for "steel". Professor Blümner²⁴ objects that we must not assume such a knowledge of technical detail in Sophocles, and that Creon's words refer not to steel in the making but to the finished article. "His meaning", says Blümner, "is that the hardest steel is often most easily broken", and I think that Jebb would have explained the words in this way. But surely Sophocles had a very intimate knowledge of the art of tempering steel as practised in his time, for we must take the passage from the *Antigone* in connexion with the opening lines of the immortal speech of Ajax, a passage which Blümner himself helped so largely to explain:²⁵

ἅπανθ' ὁ μακρὸς κἀναρίθμητος χρόνος
 φύει τ' ἀδῆλα καὶ φανέντα κρύπτεται·
 οὐκ ἔστ' αἰλπτον οὐδέν, ἀλλ' ἀλίσκεται
 χῶ δαινὸς ὄρκος καὶ περισκελῆς φρένες.
 κἀγὼ γάρ, ὅς τὰ δαίν' ἐκαρτέρουν τότε,
 βαφῇ σίδηρος ὥς, ἐθελύνθην στόμα
 πρὸς τῆσδε τῆς γυναικός· Ajax 646 seqq.

"All things", says Ajax, "the long and countless years first draw from darkness, then bury from light; and there is nothing for which man may not look; the dread oath is vanquished and the stubborn will. For even I, erst so wondrous firm,—yea, as iron

²⁴ Blümner, *Technologie*, iv, p. 348. But he continues: "Ich möchte daher doch glauben, dass Sophocles, wenn auch technologisch falsch, mit ἅπταν ἐκ πρὸς περισκελῇ hat sagen wollen, dass das Eisen durch die Behandlung in Feuer spröde werde."

²⁵ For the complete explanation see the note in Jebb's Appendix.

hardened in the dipping,—felt the keen edge of my temper softened by yon woman's words" (Jebb's translation). Here, of course, we have a reference to the tempering of steel by heating iron and plunging it into cold water. Sophocles is referring, as I think, to a finer metal than the *σίδηρον ὀπτόν* in the *Antigone*, which is hard, indeed, but not tempered. Any suggestion that he meant there tempered steel would make Creon's comparison lose point, as he is railing against the obstinate characters with which he has to contend. Ajax is of a finer metal, and although his mood alters his purpose remains unshaken.²⁶

I should, accordingly, translate *περισκελῆ* in the *Antigone* passage by the word "brittle". "Stubborn spirits are often humbled just as hard iron passing through the fire becomes brittle and is easily broken." Compare other words from the same root such as *σκελετός* (skeleton) and *ἀσκελής* (dried). I cannot believe that Sophocles there meant to convey the meaning *σίδηρον ὀπτόν καὶ ἐκ τῆς βαφῆς περισκελῆ*. But in the Ajax passage any one with sufficient knowledge to use the technical *βαφή* for the bath for tempering steel would know that it implied an earlier process of heating the metal—*ὀπτόν ἐκ πυρός*. If Sophocles in the *Antigone* is speaking of the best steel that could be produced he has given the ancient smiths away very badly indeed.

Judged by ancient standards the tempered product, or steel, was better than untempered iron, but may yet have been itself brittle and poor in many cases.²⁷ In

²⁶ See Jebb's note. Ajax is not going to yield to the Atridae, but feeling himself overcome by fate seeks relief in death.

²⁷ This was recognized and caused difficulties as late as the
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the modern process iron is heated up to c. 1,400° C. and then plunged in cold water. This leaves the steel hard but brittle. The last defect is remedied by the process of annealing or reheating the metal up to c. 200–300° C. How the ancients measured the heat generated in their furnaces is presumably not known. No doubt there were large margins for error and consequent variation in the quality of the steel, while they may have been quite unaware of the correction given by annealing the tempered metal.

It is generally assumed that the art of tempering bronze by this method was known to the ancients, but we are tempted to infer from the cryptic utterance of Clytaemnestra that it was not extensively practised :²⁸

οὐκ οἶδα τέρψιν οὐδ' ἐπίφογον φάτιν
ἄλλου πρὸς ἀνδρὸς μᾶλλον ἢ χαλκοῦ βαφάς.

Agamemnon 617.

The queen may merely mean "I know no more of such scandalous address than of the craftsman's art, about which no woman, far less a queen, can know". This is, in effect, Mr. Sidgwick's interpretation. The late Dr. Verrall, less concerned with the technical process than with the tragic import of βαφή, βάπτειν, dismisses the phrase as proverbial for the impossible, while Sidgwick understands by χαλκοῦ βαφάς the

time of Pliny. See *N. H.* xxxiv. 146 "tenuiora feramenta oleo restingui mos est, ne aqua in fragilitatem durentur". It is not an unfair inference, I think, that annealing was unknown in Pliny's time.

²⁸ The tempering of iron, on the other hand, serves Homer for a simile:

ὡς δ' ὅτ' ἀνὴρ χαλκεὺς πέλκεον μέγαν ἢ σκίπαρον
εἰν ἴδατι ψυχρῷ βάπτῃ μεγάλα ἰάχοντα
φαρμάσσαν· τὸ γὰρ αὖτε σιδήρου γε κράτος ἴατιν.

Odyssey ix. 391 seqq.

tempering of bronze by immersion as many would do. But it appears that Verrall is right, for the best modern authority agrees that a knowledge of tempering or hardening bronze by this process of immersion after heating was unknown to the ancients.²⁹ In fact, unless the bronze contains at least 30 % of tin the result of a χαλκοῦ βαφή is actually to make the metal softer.³⁰ The hardening of bronze, then, was only possible to them by such methods as varying the amount of alloy in the copper and by hammering.³⁰ The special merit which the Corinthian bronze gained by immersion in the waters of Peirene concerned the colour and not the hardness of the metal.³¹

Just as better results were obtained by other artists on passing from a soft to a hard material, so, we may be sure, the best die-engravers chose a hard metal in preference to a soft one. The fact that they were also gem-engravers accustomed to work in hard stones with splinters of corundum, the hardness of which as compared with the diamond is as 9 to 10, would enable them to work on steel or the hardest bronze. From the artistic side alone it is impossible that some

²⁹ Blümner, *Technologie*, iv, p. 335.

³⁰ I am unable to say whether Reyer's view, mentioned by Blümner, that hardness was obtained by the addition of phosphorus, which Reyer noticed in some ancient bronze to the extent of 0.054-0.25 %, has been more fully investigated. It is now well known that phosphorus has this effect, but very many different samples would have to be analysed to show that this process was known and practised at all extensively at any given date in the classical period.

³¹ It should be noted that Dr. Verrall translates χαλκοῦ βαφάς by the words "the dyeing of bronze", not "the dipping of bronze". But in view of the Corinthian bronze and its special colour the second translation will better accord with his explanation of the phrase as equivalent to an unsolved mystery.

designs can have been executed in soft metal. Could the beard of the Dionysos on the early Naxian tetradrachms, the wiry waved hair on the coins of Syracuse, or the minute letters in which engravers sign their names have been engraved in a soft metal with any hope of keeping the sharpness of the lines?

We may conclude with a short summary. (1) Specimens of ancient coins struck from the same die are common rather than rare.³² (2) The view that these dies were made of a soft metal and were soon worn down does not seem to be supported by facts. (3) They may, however, have broken easily owing to the brittle nature of the metal in which they were cut. (4) An explanation for the variety noticed among ancient dies may be that several were ordered for simultaneous use as the only way of increasing the output of coins.³³ (5) Lastly, we may venture to suggest to lexicographers the meaning "brittle" for the word *περισκελής* as applied to metal.

S. W. GROSE.

³² In the 37 obverse and 73 reverse dies mentioned in note 12 above only three of the obverse and four of the reverse dies are known by a single specimen. In Dr. Regling's *Terima* only two out of 44 obverse and four out of 68 reverse dies have failed to leave more than one specimen. (Obverse dies G and PP; reverse dies η, α, τττ, φφφ; moreover G and η are combined in a specimen (No. 8) of doubtful authenticity.)

³³ After this paper was written and the casts for PL IV were being rearranged to include the Syracusan tetradrachms mentioned in note 2, which I had at first overlooked, I found in connexion with these coins that Dr. Tudeer (*Syrakus*, p. 216) had already given a complete analysis of the numbers of extant coins from all his Syracusan dies, and had suggested as a reason for the continued use of fractured dies the inability of the artists to work quickly enough in view of the enormous number of coins required for circulation. This view is, I think, complementary to that reached above.

VI.

SILVER COUNTERS OF THE SEVENTEENTH CENTURY.

(PLATES V, VI.)

To the pen of Mr. G. F. Hill we owe an interesting article on "The Technique of Simon van de Passe", published in the second part of the *Numismatic Chronicle* in 1915.

When Mr. Hill read his paper before the Royal Numismatic Society in the previous January, some remarks were offered by me on the corroborative evidence afforded by some of the incuse counters of the same period, representing James and Prince Charles, *circa* 1616-26, and this led to the suggestion that I should put together my notes on the origin of these and similar smaller portraits, not only from the point of view of art, but also of chronology and technique.¹

¹ *Num. Chron.*, 1915, p. 232. With regard to chronology, I have to thank Mr. A. M. Hind and Mr. H. C. Levis, who have placed their great knowledge of contemporary portraiture and engravings at my disposal, giving me much help. Mr. Levis has also lent me from his collection of prints our illustrations of Henry V, Henry VI, Edward IV, and James I, which were first used in his *Baziliologia*, published in 1913 by the Grolier Club. My thanks are due to Mr. Grueber, to Mr. Hocking, to Mr. C. W. Carruthers, to Messrs. S. Littlejohn, A. P. Ready, and others, who have assisted my technical researches; and to Mr. A. Baldwin, Mr. S. Spink, Mr. Malcolm Oliver, Mr. Whitecombe Greene, Colonel Croft Lyons, and several other connoisseurs who have allowed me access to their collections of plaques or counters. Above all must I express my

It is with diffidence that I enter again upon the discussion of points which have been so lucidly set before us by Mr. Hill, who has expounded with his usual fairness the conflicting views taken by earlier writers concerning the silver plaques, which owe their origin to Simon van de Passe, namely, whether reproductions were made by means of dies or whether each piece was separately engraved by the help of a transfer.²

Mr. Hill explains the danger of injury which would be incurred by the upstanding fine lines of the die, if subjected to the pressure necessary to obtain a good result, and considers that the balance of evidence is in favour of separate engraving.

It seems unnecessary to add a word of agreement to views expressed by one much better qualified than myself to give an opinion on these matters; but I would like to say that since the publication of his paper I have, by the kindness of Mr. S. Spink and Mr. A. Baldwin, had the opportunity of examining various silver plaques—some of them under the microscope—and I find that the clear cut lines and the level smoothness of the intervening blocks, typical of hand-

great obligation to Mr. W. B. Parker for a complete analysis of one counter, and my gratitude to Mr. Hill himself, to Sir Hercules Read and to Mr. Brooke at the British Museum, and to Mr. H. P. Mitchell at the Victoria and Albert Museum, who have allowed me facilities in comparing counters in their charge with those in my hands, discerning thereby the small differences which form links in our chain of evidence for hand-engraving and the recurrent flaws or marks which point to striking from dies or casting.

² Sir John Evans in the *Proceedings of Num. Soc.*, 1902, pp. 33 and 34, and Sir Sidney Colvin in *Early Engraving and Engravers in England*, 1905, p. 103, brought forward respectively these two theories.

engraving, have corroborated the theory that each piece was separately cut by the artist. I have seen fresh proof of the slight varieties which must occur in pieces so produced in an example recently shown to me of the dated 1616 Princeps Walliæ (*Med. Ill.*, vol. i, p. 216, No. 66), which formed lot 306 in Mrs. Spencer's sale (Sotheby, December 8, 1915), and in two specimens of the James I (*Med. Ill.*, vol. i, p. 214, No. 61).

But enough of the beautiful plaques; their case has been clearly proved; let us turn to the counters, which should at first sight stand or fall by the same rules—at least, such is the view expressed by Sir Sidney Colvin in his *Early Engraving and Engravers in England*, an opinion not lightly to be challenged. On the other hand, the carefully studied pronouncement of Sir Wollaston Franks in favour of striking by dies deserves earnest consideration, to which extra weight is attached by the large number of absolute duplicates in his cabinet.³

It may be said that a set of reckoning⁴ or card

³ Sir Wollaston Franks, who possessed a large collection of counters, believed them to be struck, and so stated in *Medallic Illustrations of British History* in 1885, and was followed by Mr. Grueber, with whom I have had the privilege of discussing the reasons held by Sir Wollaston. By the kindness of Sir Hercules Read, I have also examined the collections on which Sir Wollaston's conclusions were based.

⁴ In the *Inventory of Lettice, Countess of Leicester*, 1635, edited in 1854 by J. O. Halliwell, we read of 41 "castinge counters of silver", valued at 32s. The word casting has no reference to the way they were made, but means "accounting by counters". The editor explains in a note taken from sixteenth-century sources that such pieces "were for them that cannot write and reade, but also for them that can doe both, but have not at some time their penne and table with them". See *Ancient Inventories*, p. 52, note 8.

counters would be beneath the notice of such an artist as Simon van de Passe, but many a *passe-partout* and small genre print proves that he did not despise unimportant work, and the early portraits of James and Charles are worthy of his hand. These, moreover, as representing the reigning monarch, should not be lightly esteemed. There is, however, no suggestion that the greater proportion of these counters were made by, or even under the personal superintendence of, Simon himself. Neither chronology nor technique would support so sweeping an attribution, for with few exceptions the engraving of the later examples is not fine. I would rather suggest that to Simon van de Passe and his brother William certain small silver portraits of the better types are due, and that the work was continued by their school.⁵

Whilst considering, therefore, the evidence that dies were in some cases used, I would also suggest that hand-engraved examples of most types exist, and that

⁵ Only the James and Prince Charles (see Pl. V. 1 and 2) series come decidedly within Simon van de Passe's English period, although certain undated genre and biblical counters (see Pl. V. 6) may perhaps be included in the years of his activity in this country. The dates of his brother William, who took up Simon's work in 1620-1, carry us further into the century. Simon's five or six years' residence in England, from 1616 to 1621 or 1622, falls, as has been noticed (see *Med. Ill.*, vol. i, pp. 375-6), partly within the period of the monopoly granted to Nicholas Hilliard for "graving and imprinting medailles" and small portraits of the king, and terminated before the issue of nearly all the varieties of counters. The date, however, of the patent is May 1, 1617, and expressly exempted from the prohibition of rivalry those who worked under "our speciall Warrant or Command", and also those who desired to reproduce their own former efforts. See Rymer, vol. xvii, p. 15. Most of Simon van de Passe's plaques are of 1616, and would therefore come under this head, and to this date I should also attribute the first type of the James and Charles counters.

the very commonness and the uneven quality of these would point to the training of pupils; for what better exercise could be found for the apprentice than the absolute reproduction of his master's work?

The evidence which can be collected for ascertaining the various methods by which the counters were produced and the successive dates at which they were issued may, for convenience, be classified in groups:—

(1) *A priori* evidence of economy and speed of workmanship.

(2) Documentary evidence of comparison with contemporary prints.

(3) Evidences of technique under microscopic examination and scientific analysis.

(1) ECONOMY AND SPEED OF WORKMANSHIP.

Although it might be worth while for an artist to engrave and temper a steel plate for the reproduction of the plaques, making from this "master plate" softened metal dies in relief, hardening them and constantly renewing them as they became flattened by the very primitive mill of the day, this would be a terribly expensive matter if the results were to be reckoned in hundreds instead of tens.⁶

⁶ Even after the lapse of nearly three centuries the counters may be picked up for a few shillings apiece, and a complete set of the rarer type, the half-length "Sovereigns of England", which is now somewhat laboriously reassembled by the possessor of one of the original silver boxes, at the cost of some £15 to £25, probably represented about as many shillings to the makers, or very little more. The counters vary in size, thickness, and weight, and there is no more than about 3d. worth of silver in the counter analysed

From this point of view, therefore, the question of expense would favour the method of hand-engraving throughout; for may we not assume that the unpaid apprentice was the person responsible for the inferior graving and for the curious mistakes which, not less than the minute attention to accuracy of detail in copying, are noticeable in certain specimens which appear under the microscope to be hand-engraved? The master engraver was bound to provide his pupil with work, and, beyond housing and feeding him, had no other obligation toward him than that of releasing him, at the end of his six or seven years' training, a perfect master of his craft. The artist by giving his apprentice small silver disks to engrave would risk less material than if he set the comparative beginner to work on boxes, spoons, seals, and the backs of watches. Private tuition was important at a time when at the mint it was not obligatory to teach. Half a century later great inconvenience resulted on the disgrace of James Roettier, in 1697, from the fact that John Roettier had trained only his own sons in the business, and apart from the fact that the premium paid was often considerable, it was a matter of reproach to be without pupils.

In 1712 Croker was encouraged to accept £35 a year for the tuition, housing, and feeding of a pupil, because he thereby saved the Treasury the salary of £80 paid

by Mr. Parker, which is one-third alloy, but I think they vary in this respect also. They mostly approach a sixpence of the period in diameter, but are much thinner. The usual complement of a box is 36 counters as regards the "Sovereigns of England"; the other types have not been met with by me in any definite numbers, and may have been issued in dozens or half-dozens, or even singly.

to an assistant graver.⁷ Nevertheless, in 1715, the practice of the mint was still criticized⁸ in respect to tuition, and compared unfavourably with that of Paris because we had at the Tower no schools of engraving, nor collections of ancient medals, and it was suggested we should send students to France to study.

As regards speed, the constant necessity of renewing the dies would detract from the advantage accruing from rapidity in stamping, which would however have been ensured in a limited issue.⁹

(2) COMPARISON WITH CONTEMPORARY PRINTS.

Mr. Hill has shown that almost absolute accuracy may be obtained by the use of a transfer, and that such transfers exist in the British Museum, one of them—that of Queen Elizabeth—bearing marks of having been thus used.¹⁰

⁷ Brit. Mus., Addit. MS., Aleborne MS. 18757. Articles concerning the apprenticeship of Francis Beresford for six years in 1712.

⁸ *Treasury Papers*, vol. xcii, No. 75, Oct. 15, 1715.

⁹ I am informed by Mr. Littlejohn that a pupil after two years' training ought to be able to produce one of the rougher counters, and, again, a couple of years' more practice should make him capable of turning out many finished examples in one day, but the master insisted on exactitude, holding it part of the training that the pupil should follow the lines of the transfer even if they resulted from a scratch. Another practical engraver, whilst endorsing the opinion above expressed, said that a practised engraver should by the assistance of a transfer be able to copy in about two to two and a half hours any of these little portraits, but that without the assistance of this print, technically called a squeeze, absolute reproduction is slower and far less certain, but is nevertheless preferred by some modern engravers when doing simple work such as crests.

¹⁰ There are prints taken in reverse from the plaque representing Robert, Earl of Leicester, by Goltzius, from Simon van de Passe's

I regret that I have not succeeded in finding the same proof with regard to many of the counters, but one example of such reversed prints on contemporary paper has been shown to me by Mr. Levis, and he kindly allowed me to compare it with three or four specimens of the full-length counter portraying Elizabeth of Bohemia, with which, but for a little more cross-hatching on the silver, the impression exactly agrees.

We may therefore perhaps rest assured that the original artist of the counters, not less than Simon van de Passe or Goltzius with their plaques, made use of this method of reproduction to a certain extent, even as regards the later series. We naturally, as a consequence, expect and find a greater precision than that, for instance, of a set of spoons or forks of the early seventeenth century, or indeed of some yet earlier counters such as those in the Mediaeval Department in the British Museum, made for the Leicester, Heneage, and de Bohun families, and freely engraved by hand in rough outline, and differing in many particulars.¹¹ Nevertheless, there

Infanta Maria, from his Bohemia family, and from some of the Charles plaques, the first mentioned, like the Elizabeth, being on seventeenth-century paper. The others, including some of the counters—those of James and Prince Charles and a rare example of the jugate counter (*Med. Ill.*, vol. i, p. 378, No. 278)—appear to be of rather later origin (see F. O. O'Donoghue's No. 294 and our p. 169, and note 57). Specimens in my collection and some of those in the British Museum are on paper of *circa* 1810-20, and some, exhibited at the meeting of the Royal Numismatic Society in January, 1915, bore on the back an inscription in handwriting of about that period, stating that ten impressions were taken in the early nineteenth century from specimens in the Duke of Devonshire's collection.

¹¹ The de Bohun counters—twenty in number—show a male and a female head; one specimen of each kind is in the Coin and

are many small varieties in the counters, especially with regard to backgrounds, indicative of the large number of models which were required by the pupils, even if, after a time, a more perfunctory and less artistic method was adopted by the intervention of a die.

It has been shown that for technical reasons (because of the difficulty of digging out the small blocks) the only way to make a die, with a surface nearly covered with fine lines in relief, was through the intervention of an intaglio matrix.¹²

To engrave this matrix the artist often copied in the desired size some extant portrait, and the die resultant therefrom would be reversed, the counter in its turn reproducing the print in miniature. It is well known that, before the adoption of reversal by means of a mirror, the artist copying a painting frequently produced a reversed impression, because he usually engraved on his copper-plate that which he saw directly before him. It is, therefore, not without interest to find in nearly every instance where a prototype print is available (notably in the half-length "Sovereigns" copied from *Baziliologia*, the great series of portrait prints issued in 1618) that absolute fidelity

Medal Department, whilst the box containing the remainder is in the Mediaeval Department. This box bears a swan, the crest of the de Bohun family, and on the bottom are the words "Elizabeth Regina", but the portraits show no particular likeness to the Virgin Queen nor to Elizabeth of Bohemia. Be they intended for one princess or another, they are of late sixteenth or early seventeenth century date, and correspond in workmanship with the Elizabethan counters of the Heneage family (*Med. Ill.*, vol. i, p. 151, No. 124) and those of Robert, Earl of Leicester (*Med. Ill.*, vol. i, p. 152, No. 126), being freely drawn without any attempt at reproduction line for line.

¹² See Mr. Hill's explanation (*Num. Chron.*, vol. xv, pp. 233-4, 4th Series).

is preserved to the rule of non-reversal. I say in nearly every instance, for some of these half-length "Sovereigns of England" resemble more nearly the very rough heads in the rare illustrated edition of 1577 of Holinshed's *Chronicle* than any other prints which have come under my notice. But these variants are not exact reproductions, and, bad as they are, they are so much better than those produced by Holinshed's exceedingly poor artist, that we venture to suggest that he and the maker of these few counters worked from a common original, which has eluded my search.

A little later on in the seventeenth century we find George Glover,¹³ or William Faithorne the elder, reversing some, though not all, of the *Baziliologia* heads, so that we have to work back to the first likely source in issues contemporary with the counters to be sure about the non-reversal.

Any one seeking inspiration in the beginning of the seventeenth century in the portrayal of our early kings would turn to *Baziliologia*, and in the interesting study of this set of prints we are greatly assisted by the

¹³ Mr. Louis Fagan in 1888, in his *Descriptive Catalogue of the Engraved Works of William Faithorne*, claimed for this artist the *Effigies Regum Anglorum*, a set of portraits of English kings, but more recent criticism assigns these prints to George Glover. See Sir Sidney Colvin's *Early Engravings*, p. 130. Glover and Faithorne are traditionally said to have been fellow pupils of John Payne, himself reckoned as the pupil of Simon van de Passe. Chronologically, however, the counters would precede Glover's portraits. These were originally issued in sets, two on a plate, the first plate containing the title-page and William I, the last James and Anne. Mr. Levis has one of these sets, inscribed on the back with the name of a seventeenth-century purchaser with the date 1643, which he believes to be the date of issue. The plates were later divided, and appeared in Lambert Wood's *Florus Anglicus* (third edition) in 1658.

research of Mr. H. C. Levis, who in 1913 compiled an exhaustive monograph concerning them.¹⁴ Mr. Levis follows the various editions of these engravings, portraits measuring on an average $7 \times 4\frac{1}{2}$ inches, issued and reissued at intervals by Sudbury and Humble, Geele and others, some few changes being introduced. The original collection, of which few complete sets survive, has—so Mr. Levis tells us—never been found in a contemporary binding, and the sets at Windsor, Paris, the British Museum, the Bodleian at Oxford, and various private libraries do not contain an identical selection.¹⁵

It is therefore, just as with counters (the missing pieces having been supplied at various times by collectors), difficult to know precisely what may be defined as belonging or not belonging to the *Baziliologia* proper of 1618, and Mr. Levis, in his admirably lucid treatise, is most successful in disentangling the editions. He tabulates the changes from first to second, third and even later states, thus obtaining a careful sequence of the successive issues through which this gallery of portraits passed. Suffice it for our purpose to say that the prints, appearing first in 1618, reappeared with letter-press in Martyn's *Historie and Lives of the Kings of England*, in the second and third editions published in 1628 and 1638, the first of these last-mentioned editions extending only to Henry VIII, the second including Edward VI, Mary Tudor, and Elizabeth. Another issue by Thomas Geele intervened in 1630.

¹⁴ See *Baziliologia, a Booke of Kings*, by H. C. Levis, privately published by the Grolier Club in June, 1913.

¹⁵ *Ibid.*, p. 1. I understand that Mr. Levis is acquainted with ten sets.

Portraits, such as that of William the Conqueror in the 1618 edition at the British Museum, were replaced in the Paris and some other sets, and in Martyn's *Historie* in 1628, by a fresh plate, and it is this second plate which is seen in the counter.

The third edition of Martyn's *Historie* in 1638 has a new title-page by William Marshall decorated with reduced circular medallions of the kings eminently suitable as transfers for counters, but these little versions were not selected. We need hardly glance in our search after unidentified prototypes at the series of portraits surrounding Wenceslaus Hollar's map of England in 1644, which present slight variety from and additions to the ordinary *Baziliologia* types, because, suitable though they would have been as models, it is probable that no counters were made at this precise date, seeing that the fashion of card-playing was eschewed by the Puritans. Moreover, Willem van de Passe was, according to recent research, dead,¹⁶ Simon and Crispin were abroad, and most of the print-engravers—witness Robert Peake,¹⁷ William Faithorne the elder, and Wenceslaus Hollar himself—were fighting for King Charles,¹⁸ who with his followers was in no condition to spend money on trifles.

¹⁶ Nagler and Franken attribute a portrait of Oliver Cromwell to Willem van de Passe, on the strength of which Bryan and Forrer tentatively suggest 1660 as the date of his death, but Sir Sidney Colvin definitely states (*Early Engraving*, p. 106) that documentary evidence points to his death in 1637. (See our p. 151.)

¹⁷ Robert Peake was an engraver and publisher, for whom John Payne, Faithorne, Glover, Hollar, and others worked. Hollar cannot be reckoned amongst the pupils of Passe, for although born in 1607 he did not come to England until 1637.

¹⁸ Faithorne and Hollar were in 1645 made prisoners at the siege of Basing House. Peake, who held the rank of Lieutenant-Colonel, was knighted by Charles at Oxford in the same year.

But to return to the prints in *Baziliologia*.

The collection issued in 1618 for H. Holland by his brother Compton Holland was mainly the work of Elstrack.¹⁹ Simon van de Passe contributed four plates: Edward VI, Prince Charles, James I, and his wife Anne, and only the two last were reproduced on the counters. Delaram's²⁰ prints also found little favour with the maker of toys, who copied neither his Henry VIII, Mary, nor Henry, Prince of Wales,²¹ preferring prints by members of the Passe family or original portraits, and selecting, for instance, the Elizabeth after Crispin van de Passe, the third plate (type C) used in *Baziliologia*, instead of the far more rare and ornate presentment by Delaram of the early edition.

These matters are useful in attributing and dating the counters, for the conflicting evidence contained in one set is sometimes confusing. Prince Charles Louis of Bohemia, for instance, looks younger in the half-

¹⁹ Renold Elstrack was a Londoner, born in 1571, the son of Flemish parents who had emigrated from Liège in that year. As an engraver he chiefly flourished 1598-1625. See Colvin, p. 75; H. C. Levis's *Evelyn and Pepys*, p. 86; and Arthur Hind's *Short History*, p. 428.

²⁰ Francis Delaram, probably a native of French Flanders, who worked in England (see *Early Engraving*, p. 84). He was born in 1590, and died in 1627 (see H. C. Levis, as above), and flourished in England 1615-24 (A. Hind, p. 425, and S. Colvin, p. 84).

²¹ It is possible that Simon van de Passe used Francis Delaram's Elizabeth as a model for his plaque; Delaram's print is extremely like William Rogers's large engraving, and to either of these, or to the drawing by Isaac Oliver at Windsor, Simon might have had access. Crispin van de Passe, working in Holland in 1603, made a simpler version (that adopted for the counter), and in his margin refers to Oliver's drawing as his prototype. Sir Sidney Colvin suggests that both Oliver and Rogers worked from a common original (see *Early Engraving*, &c., p. 52, and letter-press of Pl. iv).

length set in which the Duke of York has joined the family circle than in the full-length pictures which terminate with a grotesque presentment of the infant Charles of England.²² But we shall see later that the counter portraying Prince Charles of Bohemia did not belong to the original set, and we may be sure that the two "Sovereigns of England" collections followed within a year or two of the respective births of Charles, born in May, 1630, and James, in November, 1633.

The most accessible series of portraits would, as we have seen, be contained either in Martyn's *Historie* or in Geele's edition of *Baziliologia*, appearing in 1628 and 1630 respectively. Presumably, complete sets would be in the workshops supplied by the Passe family, but curiously enough I have never found any half-length counters copying the "Booke of Kings" further than Henry V. There are several other contemporary and even earlier books containing a series of royal portraits agreeing with or differing entirely from *Baziliologia*; but these do not help us much, for none are followed consistently by the counters. The renderings, real or imaginary, are mostly based on then

²² The counter is taken, both obverse and reverse, from a print almost as ugly by Marshall. The print was reproduced more than once on the birth of Charles I's children. The earliest example chronicled, which I have seen, is signed by William Marshall, and was published in 1637 by Jenner on the birth of Princess Anne. A later state celebrates the birth of Henry, Duke of Gloucester, in 1640. Verses are printed below concerning the two brothers Charles, both born, as is stated, in May; the elder, who lived but a day, reposes in a cradle, whilst the second sits in a chair decorated with the Prince of Wales's feathers. If this be really the first issue of Marshall's plate, he must have worked in 1637 from some picture or print already extant, otherwise the illustration of a medal struck on the birth of Prince Charles and the verses, which apply to him only, cannot be explained.

existing prototypes, sometimes tombs, glass paintings, or received types, but none of them even remotely suggestive of the full-length "Sovereign" counters. It is perhaps fortunate that the artist of the counters did not draw his inspiration from the woodcuts perpetrated by T. T. in 1597.²³ Those of John Taylor are more interesting from the fact that they are line engravings, but are clearly derived from the same original models.²⁴ Jodocus Hondius in 1610 decorated a map of Lancashire with kingly heads of the *Baziliologia* type, and his *Talbot's Rose*²⁵ has some charming little ovals of the Tudors which might well have taken up the burden when the artist of the counters abandoned the "Booke of Kings". Possibly the collection of Charles I, which contained, according to Vanderdoort's Catalogue,²⁶ many portraits of early kings, may account for some of the divergent busts. For those persons more nearly contemporaneous with himself the engraver had recourse almost always to prints executed by the Passe family, whether himself a member thereof or only of their school. Witness James I, his wife, his two sons, his sister and her husband, all copied directly from the works of Crispin, Simon, or Willem.²⁷

Given, then, the artist's wish to popularize the work

²³ T. Timme or Twyne, *The Booke containing the True Portraiture of the Kings of England*.

²⁴ John Taylor produced his regal portraits in two versions, one of the *Baziliologia* type in two editions in 1618 and 1621, the other in whole lengths copied from Goltzius in 1622. *A Brief Remembrance of English Monarchs* was the title of both series. The full-lengths were reproduced in woodcuts in 1630.

²⁵ Published in 1589.

²⁶ Brit. Mus., Harl. MS. 4718.

²⁷ For details concerning the family of van de Passe see Appendix III.

of the Passe family by engraving a multitude of counters, he would first make a copy in a reduced size on a flat silver plate which might be afterwards punched out to serve as a counter.

From this plate an impression would be taken in fine vellum. Another silver plate, probably cast and then hammered to the desired thickness, was coated with fine powder to take off the design, which could then be followed exactly by the apprentice using his master's tools.²⁸ A small mark of a compass is usually visible in the centre of the "Sovereigns of England" counters, and this may be advanced in favour of centring the die; but it would be equally useful for transfer work, as the artist would draw a circle to ensure the exact placing of the print, which would then be doubled over when the other side was about to be engraved, the impressions of the obverse and reverse being taken on one sheet of vellum. Mr. Littlejohn and Mr. Carruthers tell me that a circular punch would be pressed with some little force on the silver, in this way marking the other side sufficiently to ensure accuracy, and when engraved on both sides the counter would be cut out.²⁹

²⁸ The pupils always used their masters' tools, and this accounts for the curious reappearance of certain lettering such as a stroke in the E and H of *Righteousness* or a gap in the tail of the R in *Regina*. These marks would be considered proof of striking from dies if they invariably occurred in one particular type, but there are counters of James and Charles with differing busts and yet with the same curiosities in lettering, and the same applies to the Charles and Henrietta series. If dies were made, these, although constantly renewed in consequence of the flattening of the ridges, would present no varieties so long as the matrix remained intact.

²⁹ I have frequently noticed that the edge of most examples, whether or not the flan shows signs of casting, is very sharp,

The study of prints signed by the Passe family is very useful as regards the backgrounds of the counters. Simon van de Passe is usually cited³⁰ as being the introducer into our country of his particular style of finely cross-hatched backgrounds, as exemplified in *Baziliologia*, in which he co-operated with Elstrack and Delaram, whose technique is said to have been affected by his. The style of Willem and his sister Magdalena, as seen in that other important series of portraits, *Herwologia*,³¹ is somewhat less minute than that of their brother.

Mr. Hind tells us that "Crispin the elder attempted the broader manner of Goltzius", but that "the bulk of his productions and that of his sons reflects the same tendency to minuteness of hatching seen in the Wierixes".³²

Turning, therefore, to Hendrik Goltzius, I examined the electrotype of the medallion he produced of Robert, Earl of Leicester, when the latter was Governor of the Low Countries in 1586.³³ The style of this plaque,

indicating that the pieces were trimmed to the required size by the aid of a punch. Mr. Parker shows that this method of trimming was employed on the specimen which he examined.

³⁰ *Baziliologia, a Booke of Kings*, by H. C. Levis, p. 8. In making portraits in the form of engraved plaques Simon was following the precedent set him in Holland by Goltzius.

³¹ *Herwologia Anglicæ* was published by Holland in England in 1620 for Crispin van de Passe the elder, but excepting a smaller copy of Simon van de Passe's Prince Henry with the lance contains little to afford prototypes for counters.

³² *Short History of Engraving*, pp. 123-4. The Wierixes were three brothers—Jan 1549-1615, Jerome 1553-1619, and Antonie died 1624—whose activity centred in Antwerp. *Ibid.*, 122. Hendrik Goltzius worked in Haarlem 1558-1616.

³³ *Med. Ill.*, vol. i, p. 184, No. 90. The original in gold was unfortunately destroyed by fire, but another record of it exists in the print taken from it, of course in reverse (Bartsch, No. 175). The

setting the example to Simon van de Passe of engraving portraits in precious metals, is much more open in background than those made by the younger man, and when Willem van de Passe sought in it a prototype for his portrait of Leicester in *Heræologia* he supplied the usual finely engraved lines behind the head. His signature in monogram *W* on this print is discussed in our Appendix II (on the boxes containing the counters) as suggestive of some connexion between the silversmith's maker's mark and that of our artist.

We learn from Mr. Littlejohn that a special instrument is used in engraving silver, being designed to produce a bright line. It is differently pointed from that used by the engravers of copper-plates, and shading, cut by these varying tools, has been recognized by him in counters which I have shown him. The makers, therefore, of these toys were provided with implements suited to artists who were employed by goldsmiths, not less than by print-sellers and book-publishers, but who were not necessarily themselves of either trade. These professions were, however, often allied, being practised by members of the same family or even the same artist in person.³⁴

It is not necessary to dwell longer at present upon Willem van de Passe's work as an engraver of prints; it is well known. But Sir Sidney Colvin remarks that

specimen in the British Museum (O'Donoghue, No. 7) has not been used as a transfer, but it is difficult to imagine for what other purpose than reproduction such contemporary plates with retrograde inscriptions could be made. Willem van de Passe's copy is larger, and looks to the right, as the medallion; thus the pulls may have been taken by him for the convenience of non-reversal in engraving the plate for *Heræologia*; if made for transfer purposes it must have been for the use of Goltzius.

³⁴ See Appendix II.

although "documentary evidence shows him to have been living in London in 1636, and to have died before the close of the next year, little is visible, beyond the production of one print in 1630, of his activity as an engraver between 1625 and the probable period of his death at the close of 1637".²⁵

Sir Sidney says that "the product of his fourteen or fifteen years' residence in this country is much scantier than that of his brother Simon", and that between 1630 and 1637 "there is nothing to show what he was employed upon".

May I, therefore, suggest the possibility that in these years Willem may have followed the practice of his brother and turned his attention to engraving silver? If one so little versed as myself in the art of the print-engraver may be pardoned for giving an opinion, the style of Willem van de Passe's signed groups reminds me more of the series of whole-length counters than the fine circular lines affected by his brother in his backgrounds.²⁶

²⁵ *Ibid.*, p. 106. Sir Sidney places the first state of Willem van de Passe's *Family of James I* in about 1622, and the alterations in the second state one might naturally assume would have followed on the coronation of Charles I, but the presence of Prince Ludovic of Bohemia, born in August, 1623, in the first, and of Princess Henrietta Maria, born in July, 1626, and of Prince Philip, born in September, 1627, in the second state, postpone the date of the engravings by some years. There is, however, little work in the alteration excepting the addition of Queen Henrietta Maria's figure and those of a couple of children, some skulls to denote the death of certain persons, and a crown on the head of Charles, with a slight increase in his beard and moustache.

²⁶ The backgrounds of the half-length sets of "Sovereigns" follow more or less the rounded style of the oval prototype engravings in *Baziliologia*: but some of these bust-counters are so much superior to others, some so frankly bad, that it seems impossible to impute all to one artist. The vertical, horizontal, and

(3) TECHNIQUE.

I have been struck by the fact, in looking through the numerous examples kindly placed at my disposal, that some exhibited a great many air-holes or blisters. I consequently put them under the microscope and this instrument revealed that the inner lines do not all show the same type of trough. The better pieces have over the whole flan straight and firm dividing lines with junctions intersecting one another almost without burr, the upper surface remaining flat as in the silver plaques, whilst the depressions shelve to a lesser width at the bottom. The poorer counters, on the contrary, show in the hatchwork an uneven lower surface in the incuse lines, and a blurred outline in the resulting cubes in the field. It is just possible that the noticeable blow-holes may result from the casting of the flans, instead of being attributable to the application of this process to the designs on the counters. One would, however, expect that some care would be bestowed on the choice of the prepared flan, and that pieces with flaws would be rejected. Mr. W. B. Parker, who has been so good as to make a complete analysis of a fair specimen of the "Sovereigns of England" series (see Appendix I), pronounces this example to be hand-engraved on a cast flan, and it is possible that irregularities below the surface might be disclosed by engraving. Were it not, therefore, for other reasons, of which more anon, it would be with some reserve that I should pronounce certain counters to be cast

other cross-hatchings of the whole-length portraits rather favour the style of backgrounds affected by Willem, but I have been unable to trace the prototypes of the greater part of the figures to see whether this also may be due to earlier originals.

throughout, feeling that they might possibly be only less well prepared than others. We find an uneven intersection of the lines and cubes in the struck coins of the period (see **Pl. VI. 3**) and in cast medals (see **Pl. VI. 5**), also in a pewter plaque representing the Bohemian royal family alluded to by Mr. Hill as being in all probability cast.⁵⁷

The study is puzzling, because we notice just as many varieties of cross-hatching, of minute features in the design, and of lettering slightly out of the perpendicular, in the cast specimens as in those which under the microscope appear to be hand-engraved, and in others again which suggest the intervention of a die. Careful examination under a very strong magnifying lens shows that the cast pieces are very much tooled, clear-cut lines appearing on the top of, or running beside, the woolly under-surface of the design. That some contemporary counters are cast there seems to be little doubt, for I have submitted peculiar specimens to various engravers and specialists in metallurgy who agreed in saying that casting is proved by the slipped metal standing on the surface.

Sometimes the appearance of double striking in certain letters resolves itself when magnified into misdirected flow of silver.

Cast counters, prepared and tooled by the pupils, would be valuable, although rather expensive, as a means of instruction in more than one branch of the silversmith's art. It is obvious that the fine upstanding lines of the moulds would and did crumble, resulting in the messy surface to which we have referred. But

⁵⁷ See *Nam. Chron.*, 4th Series, vol. xiv, p. 239.

this breaking away would be much more rapid in a die, because a certain pressure must be applied. One of the strongest arguments against the "mill" method is this deterioration of dies if placed in the roller press which we associate with striking with any precision so early as the seventeenth century, although I understand from Mr. Hocking that in modern practice³⁸ there is no difficulty in transferring fine lines in relief from matrix to punch and vice versa. Mr. Levis also tells me that such operations are easily carried out in America at the present day. He kindly showed me a collection of finely hatched vignettes printed in the United States for bank-notes for which plates are made in steel, these plates being sunk as required from a die, which had been already struck from the originally engraved "bed-plate".³⁹ Great pressure is applied.

³⁸ It is observable, however, that when an eighteenth-century artist wished to produce cross-hatched lines these appear in relief in the medals, being engraved incuse in the die, and thus avoiding the danger of crumbling. An effort in the seventeenth century towards the introduction of an intaglio inscription on a hammered coin failed in the Combe Martin *Ich Dien* half-groat of Charles I. This piece is very rare and it is seldom that the words can be read, although protected by other work which must have been higher in the die. This is usually the case with coins, the incuse work not going deeper into the flan than the general surface, the ribbon on which the words run being in high relief.

³⁹ The subject is first engraved on a soft steel plate, which is then case-hardened; the design is then transferred to a soft steel die, which is in turn hardened, and from this die any reasonable number of plates may be impressed in soft steel and hardened for printing purposes. If the die becomes too much worn for use, a new one is made as before from the original plate. (Information kindly supplied by Mr. Levis.) This is practically the process described by Mr. Hill (*Num. Chron.*, 4th Series, vol. xv, pp. 233-4). W. L. Ormsby described in 1852, in a book called *Bank-note Engraving*, the means, by the Transfer Press, which he illustrated (p. 90), of producing this die in relief, the latter being

But machinery in the seventeenth century had not reached the perfection of the nineteenth and twentieth, and it is worthy of remark that Briot's pattern half-groat of 1640, which I have chosen as the finest example I could find of seventeenth-century incuse striking in a press, shows signs in two specimens in my cabinet of fraying away in the upstanding lines of the die although protected as stated in note 38. (See enlargement on PL. VI. 3.) The coin is considerably thicker and smaller than the counters, and of course the greater the surface the more likelihood there was of buckling under pressure in striking, although this pressure would be slighter than that required for a coin, the impression being very shallow. The condition of "hardness" of the particular specimen examined by Mr. Parker, however, precludes the use of a roller press.

But in the reign of James I, although this king had some mechanical appliances, we know little of their working excepting the fact that medals exist struck within a collar.

Briot's presses in the time of Charles I presented difficulties because the coin was apt to buckle, vide the Scottish and York coinages. Those struck at the Tower mint met with more success, owing to a roller press, by means of which the pieces were straightened, but the rocking movement as then understood was prejudicial to dies in relief. Briot's pattern crown (Snelling, Pl. vi, No. 7) shows a slight attempt at cross-hatching in the cap of maintenance, but these lines are broken in specimens otherwise in good condition.

cylindrical and taking up on half the cylinder an impression from the steel "bed-plate".

The Richmond farthings⁴⁰ of private manufacture were successfully made at this period in a roller press, a strip of metal passing between two engraved cylinders, but not being incuse they did not present the same difficulty as the counters.

Our want of definite knowledge of the instruments used in England by jewellers at this precise date is unfortunate, for the well-known opposition of the mint authorities delayed the introduction into the Tower of mechanical appliances which may already have been used privately, and the counters are of course of private manufacture.

Mr. Augustus Ready suggests that a little press like the Spanish seventeenth-century implement described and illustrated by Mr. Hill in the *Numismatic Chronicle* (1915, pp. 90-2) would be sufficient, by very gentle pressure applied by hand, to produce incised lines on a very thin cast flan of small size.⁴¹

Mr. C. H. Carruthers, himself a practical engraver and jewel-setter, was so good as to look through a large number of counters with me, and whilst pronouncing most of the earlier series to be hand-engraved throughout, he picked out others as showing signs of casting, and others again which were, he said, distinctly the product of a die.

These, he told me, could have been made by the help of an instrument of the nature of a "monkey press", although not of the type described by that

⁴⁰ See *Brit. Num. Journ.*, vol. iii, p. 199, Royal Farthings, by Fleet-Surgeon Weightman, R.N.

⁴¹ The thickness of the counters varies from 0.015 in. to 0.031 in., as against 0.027 in. in a Briot sixpence; the majority average 0.020 in.

name in the *Encyclopædia Britannica* as intervening in point of time between the hammer and the press, coining being effected "by means of a falling weight". This instrument is technically known as "a drop-press" to jewellers.

The press to which Mr. Carruthers alludes was worked by the pressure of one man pulling towards him a handle, which regulated a screw, so delicate that he could at will crack without breaking a watch-glass, the watch remaining uninjured. With his other hand he steadied the disk or strip of metal, and the rocking, so prejudicial to fine lines in a roller mill, was avoided. This hand-press was, he tells me, used by jewellers to prepare gold for enamelling⁴² and to mould the shape of metals by means of a die, at an early period, but he could not supply any certain date prior to the beginning of the eighteenth century for its use. It is now discarded in favour of other inventions, but the implement used by himself as a pupil was already some 150 years old. I understand from Mr. Hocking that similar presses were early in use for cutting out flans, but neither can he remember any precisely dated record of their introduction.⁴³

Whilst agreeing with my deductions that some pieces

⁴² Cellini in 1568 describes a very simple screw-press which by means of levers worked by four men produced deep impressions on an already cast piece (Cellini's *Treatises*, translated by C. R. Ashbee). Cellini, however, prepared his gold diapered surfaces for the reception of enamel by hand "with the aid of a four-cornered chisel to the depth which the enamel is to be".

⁴³ Mr. Hocking gives a clear account of the early use of presses from the time of Bramante, Leonardo da Vinci, and Cellini in Italy, the latter introducing his art into France, where this "Monnaie du Moulin" developed under the French king, Henry II, and thence through Mestrell and Briot gained a temporary footing in England (see "Simon's Dies" in *Num. Chron.*, vol. ix, pp. 56-116, 4th Series).

were cast, Mr. Hocking thinks that others of the counters may have been struck by this press, but, as in the case of another process suggested by Mr. Carruthers, he deems it would be more suitable to impress metals on one side only. This other way, often employed by jewellers, was to place the softened flan on a piece of lead, which, owing to the yielding quality it possesses, saves all jar. The operator holds and steadies the die in his hand and strikes so lightly that it remains uninjured; the blank side might if necessary be treated in the same way afterwards, the finished face being protected from any chance marks on the lead by a piece of paper or felt.

If this process were followed there would no doubt be a certain difficulty in hitting off the precise relation of the two sides, which is so easily effected by the transfer, but Mr. Carruthers points out that in some of the counters having an elaborate obverse, which appears from the surface to have been struck, the reverse was obviously left plain and filled in afterwards entirely by hand. He is of opinion that this is probably the way chosen in executing the series embracing Charles I (Pl. V. 11), Henrietta Maria, Bernhard of Saxony, Gustavus Adolphus, and John Baner in 1638,⁴⁴ for he pronounces the lettering on the reverses to be undoubtedly hand-engraved. To striking with dies on both sides he ascribes a set, which I showed him, of the half-length "Sovereigns of England".⁴⁵ Amongst these I have met with curious

⁴⁴ *Med. Ill.*, vol. i, pp. 381-3, Nos. 283-7.

⁴⁵ *Med. Ill.*, vol. i, p. 380, No. 282. The little cushions are not always evenly pushed up into the pocket in the die between the upstanding lines, and a certain flattening and spreading of these lines is sometimes noticeable.

flaws, which appear to be unaccountable in any other way than the fracture of a die. Take, for instance, Frederick V of Bohemia, as shown on our **Pl. V. 10**, cf. **Pl. VI. 4**. This is from my own collection. The specimen in the Coin and Medal Department at the British Museum presents but a very small crack, whilst in that in the Mediaeval Department we find a large chasm as viewed under the microscope. These broken lines appear almost impossible as the work of a careful pupil following the lines of a transfer, and, had this been a flaw in a cast flan such as we frequently see in pieces undoubtedly hand-engraved, it would not recur increasingly in the same part of one particular portrait. Had these counters of Frederick been cast in their entirety the one from the other, the shrinkage of the metal would have reduced the size of the busts; they must therefore proceed either from one broken mould or one broken die, and microscopic comparison is in favour of a die.

In all, or nearly all the better counters, a great deal of hand-tooling must be admitted, and slight difference therefore must in all cases be expected; but it seems that though originally many sets must have been entirely hand-engraved, and reproduced by help of a transfer with the same astonishing accuracy as the plaques, the microscope does indicate that other processes were tried, and we may perhaps attribute the great rarity of the half-length "Sovereigns of England", and some other types which bear an affinity to the milled coinage of the period, to the spoiling of the dies; whilst the full-length series finally took refuge in casting, and were reproduced in greater numbers.

It therefore appears that the counters cannot be placed on the same plane as the plaques, but as the same argument partly obtains, though in a lesser degree on account of the smaller size of the counters, with regard to the difficulty in striking in the early days of the press, I have thought it best to have some microphotographs prepared of the magnification of 25 diameters.

The six examples selected from these for illustration on **Pl. VI** comprise three pieces known to be hand-engraved, struck or cast, for comparison with varieties in the counters in order that my readers may determine for themselves how far the tentative suggestions made by me are justified.

No. 1 is part of the handle of a mid-seventeenth century spoon, one of a set in which each spoon differs in detail from the others, although all of one design. The engraving is of unusual depth, and I chose it as accentuating the peculiarities of hand-engraving and showing the undisturbed flan and straight lines produced by the graver's tool.

No. 2 is a portion of the background behind the head of Charles I (the counter illustrated on **Pl. V. 4**). It will be seen that the lines intersect without messy corners and the intervening spaces are smooth and nearly flat.

No. 3 is an example of Briot's milled coinage of 1640—the thistle on a pattern half-groat to which I referred on p. 155 as illustrating the difficulty of producing fine cross-hatching by his method.⁴⁰

No. 4 is a portion of the Frederick of Bohemia counter in the half-length "Sovereigns of England" set, exhibiting the flaw of which I wrote on p. 159 (see also illustration on **Pl. V. 10**). This is the series which gives the strongest evidence of striking in the extraordinary fidelity of the

⁴⁰ There is no suggestion of any attribution to Briot of any of these counters. He did indeed produce such toys, but of quite a different type, namely, thin uniface clichés in rather high relief. I have a box of these signed counters (*Med. Ill.*, vol. i, p. 243, No. 11) representing Charles I, with a similar bust upon the lid of the box. A box-lid of the same design is in the British Museum, but incomplete. Briot made various jettons on the birth of Prince Charles and of Prince James, but they are of the ordinary type of the milled medal of the day, like his coinage.

"flick" border, which contrasts startlingly with a small hand-engraved piece inset as a mend in more than one of the examples placed at my disposal for study.⁴⁷ Note the welling up of the metal to meet the displacement caused by the pressure of the ridges in the die.⁴⁸

No. 5 represents the shading on a rose in a well-known cast medal by Briot (*Med. Ill.*, vol. i, p. 374, No. 268), one of the few examples of satisfactory imitation of engraving by this process. Unfortunately my specimen is a little rubbed in parts, but examination of a more perfect example shows the same uncertain outline of the spaces between the lines, owing to the uneven flow of the hot metal.

No. 6 is a typical counter of the full-length "Sovereigns of England" series, of which the majority exhibit the same messy outlines when placed under the microscope, although they mostly show signs of tooling in the important details, such as the faces, which consequently present minute variations. About one in four of this series appear to be hand-engraved or struck, and some of the cast pieces are probably not of the period. It is to the superior class of these counters that the specimen analysed by Mr. Parker belongs (see Appendix I).

⁴⁷ Amongst mended pieces a curiosity is seen in the unusual position of Prince Henry's arm in one of the full-length Sovereign type. The counter was evidently mended by a comparatively modern engraver who had no access to an original. Under the microscope, though the junction is of course visible and the work is by a different hand, the rest of the counter bears affinity to the hand-engraved specimens in its clear lines—albeit of rough execution.

⁴⁸ The use of the microscope and photographs is unfortunately handicapped by the well-known fact that lines in relief appear incuse and vice versa, unless the light fall on the picture in a peculiar manner. I must therefore remind my readers that the lines are intaglio and the work originally of the graver, whilst the blocks are in relief. Also that in an engraved piece the blocks are actually the flan as originally rolled or cast, but that with dies the blocks have been subjected to pressure, and present therefore a rounded and less even surface. Finally, that to produce the dies this pressure was repeated, and the matrix alone preserved the original flan.

DESCRIPTION OF THE COUNTERS.

1. *James and Prince Charles* (Pl. V. 1-3).

Med. Ill., vol. i, p. 376, No. 272.

It may be helpful to set forth the counters chronologically beginning with the James I and Prince Charles, bearing on obverse and reverse the legend GIVE THY IVDGEMENTS O GOD UNTO THE KING AND THY RIGHTEOUSNESSE UNTO THE KINGS SONNE. I have never found a box containing these counters; presumably however sets must have existed, unless these little pieces were made for distribution singly, as small presents, instead of the more expensive plaques. The portrait of James on the obverse is a direct copy of the plaque (*Med. Ill.*, Pl. xiv. 2); precisely the same rendering appears on the title-page of the 1618 edition of *Baziliologia*, in this instance approximately the size of the counter; but the larger plate within the collection shows the king with a sceptre as in the "Sovereigns of England" busts. The James plaque is undated, but it is likely that the first issue of the counter, if counter it be, may together with its prototype be placed about 1616, and may perhaps be the work of Simon van de Passe himself, for the early specimens are beautifully engraved by hand. The varieties in the portraiture of James are trivial, but the reverse renderings of Prince Charles are of three distinct types, unbearded, with a small beard, or with a large beard. The connecting links are many; thirty examples, my own and those of friends selected at random, show eight varieties, exclusive of details, which are seen, apart from the bust, in the lettering or backgrounds. Of

these thirty, eight appear under the microscope to be hand-engraved throughout, five of them belonging to the early and well-executed type with the unbearded portrait of Charles on the reverse (Pl. V. 1), which we venture to impute to Simon van de Passe,⁴⁹ whilst the remaining three differ from one another in their coarser lines and older features.⁵⁰ Simon's plaque affording the prototype for this young portrait, we need search no further were it not that a print by Crispin, the brother of Simon, exists in more than one state and throws some light on the question.⁵¹

The first state is occasionally found in *Baziliologia*, and may follow or precede Simon's plaque, but is probably of the year 1618 or prior thereto; the dress in the print is more elaborate than that shown in the counter, but the face, hair, and falling band are identical. The second state of Crispin's prints shows Charles with a very small beard (*circa* 1620), and this coincides exactly with the third variety of the counters, an interesting specimen with larger eyes and a still smaller beard taking an intermediate place.⁵² It is

⁴⁹ These counters resemble the plaque (*Med. Ill.*, Pl. xvi, No. 5).

⁵⁰ It is curious that the finest type of these unbearded Charles counters shows fewer varieties than any of those which follow. There are on most of them a couple of strokes running over the edge of the inner circle towards the letter I in RIGHTEOUSNESSE. It is of course possible that the mark, originally accidental, would be impressed on the transfer and copied by the pupils, or it may be intentional, to act as a guide in fixing the lettering. In later specimens this mark gives way before a stroke through the letter H, but not always in the same position. See p. 148, note 28.

⁵¹ These prints are sometimes ascribed to Crispin the elder, but usually to his son Crispin II, the brother of Simon.

⁵² I have only seen one example of this counter, which has also a peculiar obverse, the face of James being very short. I think it is hand-engraved throughout, but being gilt the lines are somewhat clogged.

seldom that this slightly bearded type is sufficiently well engraved to be attributed to Simon van de Passe, although still within the scope of his English residence. There appear to be a few coarsely engraved pieces, but the crumbly nature of the cross-hatching is already apparent, and one suspects that the reproduction by casting has already come into play, although very largely touched up by hand.

There is a third state of the Crispin van de Passe print, but this does not come into use on these counters; it was worked up by Jan Meyssens, whose name takes the place of Passe's, and who added a lovelock not seen on any of the jettons under present discussion.⁵³

Crispin's first print was copied by others, but none of the renderings show the steadily increasing beard of the later counters. These are more and more coarsely produced until we come to three varieties of a late portrait of Charles, of which the second and best is illustrated on **Pl. V. 3**, and which can hardly have preceded the death of James, insomuch as it is considerably older in appearance than Hole's fine print

⁵³ In the collection of the Duke of Buccleuch there is a larger medallion of coarse engraving showing James I on the one side and Prince Charles on the other, and this portrays the lovelock as given by Meyssens. It is signed W.S., and is usually attributed to Walter Schultz (*Med. Ill.*, vol. i, p. 376, No. 273). It is possible that this and other large pieces were intended for counters, such as that of the Restoration period portraying Charles I and Charles II, recently presented to the British Museum by Mr. Eld. Similar medallions representing William and Mary are in the London Museum, and I have seen one of General Monck in Mr. Weight's cabinet; but such specimens are all roughly hand-engraved, and not of the period at present under discussion. They probably formed a set, which might have been placed in a long cylindrical box in my collection with the head of Charles I engraved on the top, and bearing the maker's mark of John White, entered in 1724.

on Charles I's accession, or that of Francis Delaram engraved at the time of the marriage of Charles in 1625, about a month later.

The two states of Willem van de Passe's print called the *Family of James I* are useful in this particular. They must have been engraved in 1623 or 1624 and in 1627 or 1628 respectively,⁵⁴ and yet there is little difference in Charles's portrait beyond the addition of the crown; and another print, bearing date 1626, shows the same small beard of the second, third, fourth, and fifth varieties of the counters. The sixth, seventh (Pl. V. 3), and eighth types, however, find their exact prototype in an engraving probably of the year 1628, by W. J. Delff after Mytens;⁵⁵ it seems, therefore, that this series continued its issue for some years after the death of James I, overlapping by a considerable period the three types which represent Charles in his early manhood and at the time of his marriage.

⁵⁴ See note 35 on p. 151. The first print appeared after the birth of Ludovic, and before that of Edward; and the second after the death of Ludovic, and before the birth of Sophia, but after that of Maria and of Philip.

⁵⁵ O'Donoghue, No. 32. W. J. Delff died in 1638, Mytens in 1632. The turned-down ruff, usually called the "falling band", was discarded by the king for the Van Dyck collar, *circa* 1630, and most of Mytens's portraits of Charles bear this falling band; it is not therefore easy to date the original painting, which I have not seen, and possibly it is not in this country, for Willem Jacobzoon Delff never visited England, although he engraved other English portraits besides the above, which is approximately dated by its companion print of Henrietta, executed in 1628.

2. *Charles I and Henrietta Maria* (Pl. V. 4, 5).

Med. Ill., vol. i, pp. 377-8, Nos. 275-7 (No. 276 is the type illustrated on Pl. V).

Next in sequence we must place the counters bearing the head of Charles I on one side and his queen's on the other.

Henrietta's bust, which varies little in the three types, resembles the companion picture to that just cited of the long-bearded Charles. It was engraved by Delff in 1628 after Mytens. It is quite reasonable to believe that the jettons, which are no slavish copy of Delff's print, show her as Willem van de Passe saw her at the time of her marriage, for her husband appears too in his early youth, and the queen's picture is very near to Delaram's print of 1625, mentioned on p. 165, or her presentment in Willem van de Passe's *Family of James I*, in which, however, she wears a coronet. Charles was seldom portrayed as he is on these counters in a hat, but as a matter of fashion we should be inclined to place as first of the three types that which shows the straight brim.⁶²

Very few of these counters are good enough to be attributed to Willem van de Passe's own hand, but an exception lies in the piece illustrated on Pl. V. 4, 5, which more than one expert has agreed with me in believing to be one of the finest specimens of hand-engraving, and equal to his brother Simon's plaques. But whilst there are amongst the many

⁶² *Med. Ill.*, vol. i, p. 377, No. 275. There is a little plate by William Marshall in which Charles wears a hat, but it is not dated, and therefore does not help us; and of course the varieties showing the king as he appeared at his trial in 1648-9 are too late to throw any light on the question.

varieties a fair sprinkling of pieces either original or reproduced by the transfer, curious instances exist of slipped metal in the legend of two examples in my cabinet, or with a blow-hole carefully pressed down in another. These are suggestive of casting and much tooling by the pupils. This tooling is seen in the undercut chin of Henrietta in another specimen. On the other hand, a counter in the British Museum with different elaboration of the queen's hair, though not quite so finely engraved as the illustrated piece, brings us back to a master's original work. There are three recognized varieties, but I have examined under the microscope nineteen specimens, six of which I believe to be hand-engraved throughout, and the rest cast and tooled, and I have certainly seen at least five differing portraits. If we suppose them to have been struck, the lettering presents much difficulty, because it is in relief on a background of incuse lines. Mr. Hocking suggests that these are casts, and that the letters were punched into each mould separately, and the use of tools such as are required for the legends of dies in finishing the moulds is rendered likely by the fact that the R in REGINA is frequently marred by the same defect in specimens not otherwise at all alike, some being of type 275 and some of 276. This form of lettering is found on the cast so-called pattern shilling (*Med. Ill.*, vol. i, p. 372, No. 265), in which the fine lines behind the inscription are fairly preserved, and of which I have never seen a struck example. Type 277 is rare, and of the two specimens I have placed under the microscope one appeared to be hand-engraved, the other cast. I have never seen a box containing a set of these counters, and, as in the case of the first type

of the James and Charles portraits, the frequency with which one specimen is found treasured in a royalist country house or pierced to be worn as an ornament is suggestive that they were at first intended for presentation singly.

3. *Charles I and Henrietta Maria jugate.*

Med. Ill., vol. i, p. 378, Nos. 278 and 279.

Nor have I seen a box containing the jugate portraits (*Med. Ill.*, vol. i, p. 378, No. 279); but one collector informed me that his father had a set of them and dispersed them as duplicates, retaining only one, which he showed me. The eight specimens which I have seen with reverse royal arms—for these counters must not be confused with the rough and common conjoined busts and three crowns on the reverse (*Med. Ill.*, vol. i, p. 378, No. 278)—are fairly well executed, and present many small differences. Two out of the three which I have placed under the microscope appeared to me to possess the firm lines definitely attributable to hand-engraving throughout. Possibly they were usually combined in a set with foreign monarchs, for they agree in incuse lettering and workmanship with a counter representing Gustavus Adolphus and his wife Maria Eleanora (*Med. Ill.*, vol. i, p. 379, No. 280), but these are not jugate. Simon van de Passe sometimes affected conjoined busts, as for instance in his signed medallion of Henrietta's father and mother, Henri IV and Marie de Medicis (*Med. Ill.*, vol. i, p. 240, No. 7), but the engraving and portraiture of these counters is less suggestive of the Passe atelier than those we have

already discussed. Want of space prevents my illustrating this and the following counter—also of the jugate type—and I must ask my readers to turn to Pl. xxxiv of *Medallic Illustrations of British History*, where many varieties will be found.

The lettering in the less well finished counters (*Med. Ill.*, vol. i, p. 378, No. 278), with reverse three crowns on a sceptre and sword in saltire, is in relief on a background of incuse lines, as in the type showing Charles in a hat (Nos. 275-7), but not so well done. There are small varieties suggestive of much tooling and many moulds; but there is a good deal of evidence of casting, and the pull taken from an example, and inserted as an extra illustration of William, Duke of Gloucester's copy of Clarendon's *History of the Rebellion*, is on paper of too recent a make to be suggestive of a transfer.⁶⁷

Nevertheless, Mr. Grueber, who was inclined to believe that the great majority of the counters are the product of the die, has now, on account of recent researches, considerably modified his views, and has pointed out to me, amongst specimens I deemed to be cast, such peculiarities as led both him and me to think that one at least out of six examples in my cabinet has the undisturbed flan characteristic of hand-engraving. We will not, however, attribute this coarse workmanship to any member of the Passe family.

⁶⁷ Vol. i, p. 177, No. 99. This book was presented to the British Museum on the death of the extra-illustrator in 1884. The print is mentioned in Mr. O'Donoghue's catalogue, p. 394, No. 204.

4. *Sovereigns of England, &c., full-length (Pl. V. 7-9).*

Med. III., vol. i, p. 379, No. 281.

I have already touched on the difficulty of finding prototypes for the early kings amongst the full-length counters of which the obverses are well drawn but the execution varies greatly.⁵⁸ The first issue should be fairly easy to date, for, as we have seen,⁵⁹ the portrait of Prince Charles displays him as a baby, whilst the reverse is the same as the obverse of various medals struck on his birth and baptism,⁶⁰ and bearing the same motto, HACTENV S ANGLORVM NVLLI.

This counter is amongst those found in a box at the Victoria and Albert Museum, containing one of the few sets which from the uniformity of backgrounds and condition is no doubt in its original state. It is absent from an apparently undisturbed box in Mr. Whitcombe Green's collection, with the same type of cross-hatching, and also in mint state; but as its owner tells me several counters are missing, so the Prince Charles may be amongst these. Both sets contain a counter representing Frederick Henry, the eldest son of Elizabeth of Bohemia and grandson of James I, the

⁵⁸ It is clear that many owe their origin to contemporary paintings; some, however, follow prints—witness the Mary, Queen of Scots, which is almost exactly copied from Elstrack's engraving of herself and Darnley (Colvin, Pl. x), but her husband's counter is not like this print. It is, however, suggested by Sir Sidney that the engraver made up his print in the time of James I from separate portraits.

⁵⁹ See *ante*, p. 146, note 22.

⁶⁰ *Med. III.*, vol. i, pp. 254-5, Nos. 35, 36, 38, and 39. Charles was born May 29, baptized June 27, 1630. The counter portraying the baby Charles bears the words: NAT. 29 MAII 1630.

only examples so far noted. In later issues this portrait is replaced by that of Charles Louis, the second son, who eventually succeeded his father as Prince Palatine and Elector, although not as King of Bohemia, from which country Frederick V was driven forth.

Pathetic interest is attached to the counter representing Frederick Henry, for it bears the motto, which he is said to have written with a diamond on a window-pane, *MEDIIS TRANQVILLVS IN VNDIS*, which in this case acted as an epitaph; for the date 1628 is added, being according to the old style of reckoning, still in use in England, correct for Jan. $\frac{7}{17}$, 1628-9, when the boy, fifteen years of age, was drowned at Haarlem.⁶¹ The portrait, so far as I may rely on a rubbing taken at South Kensington, resembles, with the addition of a cloak, one drawn by Willem van de Passe, although it shows more of the figure than is seen in the print, where the lower limbs are almost concealed in a large family group. The same may be said of the portraits of his parents taken from the identical picture, that of James I and his family, to which may also be traced the full-length picture of Henrietta. Strange to say, Frederick Henry's counter bears the garter on the reverse, and I would welcome evidence that he possessed this honour, which is rightly portrayed on the later jetton of his brother, on whom

⁶¹ *Hübner's Genealogische Tabellen*, vol. i, p. 139. This is the usually received date; but some histories, in consequence of the error committed by Jesse in his *Memoirs of the Stuarts*, give the death as occurring in 1625. He wrote that Elizabeth lost her father and son in the same year, basing his belief on one of James Howell's apocryphal letters, dated Feb. 25, 1625, which described the event as immediately preceding the marriage of Charles I.

it was conferred shortly after the death of Frederick V, father of the two boys.⁶²

Another point of interest centres in the bunch of three feathers as Prince Frederick Henry's crest, echoed on the reverse of the counter representing James I's son, Henry Frederick, Prince of Wales,⁶³ but only assumed as a decoration on the back of his chair by baby Charles, the son of Charles I.⁶⁴

These feathers are more distinct in the original print, having been almost converted into fleurs-de-lis in the counter.

The length of reign, date of death, or place of burial, is given on the reverse of the counters, or, if the persons portrayed were still living, an appropriate motto, such as GOD SEND LONG RAINE in the case of Charles I; VERBUM DOMINI MANET IN ÆTERNVM in that of Elizabeth of Bohemia, her husband and second son. No date of death appears on the later counters of Frederick V;⁶⁵ it was clearly not thought

⁶² Frederick V died on Nov. 12, 1632. His vacated garter was given to Charles Louis by election April 18, 1633. He was invested May 28 by proxy, and installed Nov. 6.

⁶³ According to the much disputed tradition chronicled by Camden, Edward the Black Prince adopted the crest of three feathers with the motto *Ich Dien* on taking them from the King of Bohemia at the battle of Cressy in 1346. It is stated in the *Dictionary of National Biography*, however, that John of Bohemia's plumes were the entire wings of a vulture. The crest on the counter is almost the same for the English and Bohemian heir apparent.

⁶⁴ Prince Charles, son of Charles I, was officially styled Prince of Wales, and given a separate establishment in 1633, the Garter being then conferred on him, but according to some authorities he was so called from his birth.

⁶⁵ The date of death is not invariably given, the counter representing Anne of Denmark, although stating that she was buried at Westminster, does not inform us when she died.

worth while to alter the transfers, casts, or dies at the time when Charles Louis's portrait replaced that of his brother.

The dating, with few exceptions,⁶⁶ is that then in use in England and most Protestant countries, and many of the varieties in spelling, such as *raïne* or *rayne* for *reign*, and errors of grammar, as *BYRYED AT NORMANDY* in the case of William the Conqueror, were by no means unusual at the period with which we are dealing, but the inscription concerning Edward V informs us that this king was *BURYED IN DE Tower*, thus suggesting the work of a foreign artist and phonetic spelling.

There must have been quite five or six separate issues, if the backgrounds were usually uniform in each given set, as we are led to believe by the consistent diagonally-crossed lines in the two original boxes containing representations of Prince Frederick Henry. In other sets we meet with vertical or horizontal lines, sometimes crossed in one direction, sometimes in another, and occasionally not crossed at all. Most boxfuls are mixed beyond redemption, owing to the fact that the ardent collector makes up a defective set with some difficulty and without attention to detail. It is, however, likely that when the upstanding lines in the dies or moulds failed the graver's tool followed the easiest course, and sometimes in a struck or probably cast counter the whole background is supplied by hand.

I would not like to assert that all the cast specimens

⁶⁶ The years given as those of the deaths of Henry VIII and Darnley are according to new style, being noted as January, 1547 and 1567 respectively. The date of John's demise is given as taking place on November 14 instead of October 19, and that of Henry V as August 13 instead of August 31; but on the whole the dates are accurate, and according to old style.

of these counters are contemporary, or even that they are all of silver; but entirely hand-engraved pieces may be found on an average of three in ten or eleven examples, the rest more usually cast than struck, and the majority are rough and rather poor.⁶⁷ If, however, we look through a glass at a fine hand-engraved specimen, such as Mr. Levis's Edward VI or one of my Charles I's, the features are wonderfully well engraved and the portraiture is good; the faces appear to differ in size sufficiently in so-called duplicates to suggest that such details were often added by hand in a cast or struck piece.

The good drawing and shading, though not always the execution, of these whole-length counters might lead to an attribution of original sets to Willem van de Passe and his school; but the treatment of the half-length type, which followed on the birth of James, Duke of York, is so various that no set could be definitely assigned to any one artist.

5. *Sovereigns of England, &c., half-length*

(Pl. V. 10, 12, 13-18).

Med. Ill., vol. i, p. 380, No. 282.

In some portraits of the bust type, such as those of Elizabeth of Bohemia, her husband and her brother Henry, and Henrietta Maria, the half-length are reproductions of the full-lengths, and find their proto-

⁶⁷ I have seen a great number of duplicates of certain portraits, whilst others are rare. Edward V, for instance, is always turning up, and certainly not always of contemporary issue. I have not had the composition of such cast pieces tested, but many appear to be of very soft and base metal. Mr. Parker has shown that the good specimen he analysed was roughly speaking two-thirds silver and one-third alloy. See Appendix I.

types in Willem van de Passe's *Family of James I*, executed in 1623-4 and 1627-8, and in Simon's Henry with the lance. But, as I have said, the early portraits mainly follow the lines of *Baziliologia*, beginning with the second and unsigned version of William I (Pl. V, 14), and running through an unbroken succession of



Henry V, by Elstrack, from *Baziliologia*, in the collection of Mr. H. C. Lewis.

Norman and Plantagenet kings, ending with and inclusive of Henry V.

But Henry VI meets our view in two varieties, and both in unfamiliar guise (Pl. V, 16, 17). Still, the makers of the counters had not deserted Elstrack's prints in *Baziliologia* altogether, for in one rare version, of which I have seen but three specimens

Henry IV, Henry VI, and Edward IV, and the uneven size of the busts renders me doubtful whether there were not more, if the maker of the counters carried his *Baziliologia* copies forward as is suggested by his reverting to the Edward IV, following Martyn's *Historie* in the edition of 1628, which terminates with



Edward IV, from *Baziliologia*, in the collection of Mr. H. C. Lewis.

Henry VIII. The two known portraits of Henry VI (PL V. 16, 17) point to three varieties—or to the frequent rupture of dies—replaced by exceedingly poor artists.

For *Baziliologia* renderings of Henry VII and Henry VIII I have sought in vain amongst the counters, and it seems strange that the artist rejected

the many excellent extant portraits of these two monarchs in favour of some painter unknown, seeking his originals in those followed by Holinshed in the illustrated edition of his *Chronicles* in 1577. These rough woodcuts, much prized for their rarity, agree fairly as regards Richard III, Henry VII, Henry VIII, and Edward VI, excepting that they are reversed probably by the book illustrator.

For the Edward IV, Edward V, Henry VI (in two positions, Pl. V. 16, 17), and Mary Tudor of the counters I have found no prototype.⁶⁹

For his Elizabeth he reverted to *Baziliologia*, taking for his model the third type issued in that series, and which is to be found in Compton Holland's sets at Windsor, Oxford, and Paris, &c.⁷⁰ It is based on a yet earlier print by Crispin van de Passe the elder, executed in 1592.⁷¹

James I (Pl. V. 12) is in *Baziliologia* and reappeared in Taylor's *Brief Remembrance* in the edition of 1621. The Charles I follows a print by an unknown artist published by Peake and later by P. Stent.⁷² The style is suggestive of Marshall and Glover respectively, but after what original I know not, although I think it takes its rise in one of the full-length paintings of the king, *circa* 1630. There is, however, an engraved plaque exactly like the counter in style and portraiture, which is much rougher in execution

⁶⁹ Mary Tudor may possibly be considered as an adaptation of Antonio More's picture, being very much as it appears on Hollar's map, which is, however, more like the original.

⁷⁰ See Levis's *Baziliologia*, Type C, and O'Donoghue, No. 81.

⁷¹ O'Donoghue, No. 80. A very similar picture, but within an archway, is in Taylor's *Brief Remembrance* in 1618.

⁷² One of these prints is catalogued by Mr. O'Donoghue, No. 179.

than Simon van de Passe's plaques, and has no doubt on that account been separated from them in the *Medallic Illustrations of British History*, where it is placed amongst later portraits (*Med. Ill.*, vol. i, p. 340, No. 186), and is figured on Pl. xxix, No. 18 of the illustrated edition.



James I, from *Baziliologia*, in the collection of Mr. H. C. Lewis.

Might I suggest that it is from the same workshop as the counters, and that it is possibly the work of Willem van de Passe or his school? But if this be so we must date it more probably to the third decade of the seventeenth century, when the pictures of Van Dyck and others first show us the king wearing the long falling lock on the left shoulder, than to the year 1648 to which it is now tentatively ascribed.

The other half-length portraits we have already discussed or else I have been unable to trace them, but those of Charles I's two boys recall without exactly following contemporary paintings, and judging from the apparent age of Charles and James may be dated *circa* 1635.⁷³

Concerning the production of these counters by the intervention of a die on both obverse and reverse I have produced evidence on pages 156-9. Apropos of the constant recurrence of a mistake which should have been corrected by any one gravings by transfer and by hand, I may remark on the fact that in Prince Henry's counter the inscription always stops short in the middle of the M., reading HONI SOIT QUI M instead of MAL Y PENSE. This is an indication that if these counters were struck the artist forgot to conclude the inscription on the matrix from which the dies were made. Similar peculiarities are seen, as for instance in the correction from 4 to 2 present in nearly all specimens of the Edward II counter; on the other hand, weaknesses in the lettering do not always coincide, or, if this be the case, such coincidence is on examples with variations in other parts.

⁷³ It is noticeable that the artist of this set of counters adhered for Henrietta to the Medici collar, which was by 1633 going out of fashion, for after the paintings of Van Dyck had replaced those of Mytens we usually see the queen in a turned-down collar. The Prince Charles is rather like a William Marshall, but the children's portraits are not exact copies. James is rather younger than as represented in his earliest portrait by Van Dyck in 1635.

6. *Charles and Henrietta Maria* (Pl. V. 11).*Med. Ill.*, vol. i, p. 381, Nos. 283, 284.

Two very graceful counters next engage our attention, but these portraits of Charles and Henrietta need not detain us long, for they are dated 1638 and probably owe their origin to Van Dyck's portrait, painted in 1634, of the king and queen holding a laurel wreath. This picture has been engraved many times by Hollar, White, Glover, Meyssens, Van Voerst, and others directly or in reverse. There are also replicas in various sizes painted by Sir Anthony. The inscription on the reverses connects these counters with others portraying foreign rulers, with one of Gustavus Adolphus (*Med. Ill.*, vol. i, p. 388, No. 285) bearing the date of his death, 1632, with one of John Baner (p. 383, No. 287), and one of Bernhard of Saxe Weimar (p. 382, No. 286), champions of the Protestant monarchy in Bohemia. A box containing these counters and bearing a lis, incuse, on the bottom, probably a foreign mark, is in the British Museum. It would hold about thirty-six pieces. Those now in it are six of Charles (see Pl. V. 11), five of Henrietta Maria, two of Bernhard, and two of Baner. Probably some sixth person should be present to make up in groups of six the usual number of three dozen. All these types are rare, and I have therefore not been able to compare under the microscope any great number apart from the Museum set, but those which I have tested are fairly uniform and quite well engraved. I should on such incomplete evidence hesitate to describe them as hand-work throughout. On the other hand, the reverses present almost too even a

surface for struck pieces, and my own observation inclines me to a belief in hand-work, but experts to whom I have submitted my own few specimens have differed in their verdicts. It is, however, quite clear that if struck they were left blank on the reverse, for all appear agreed that the inscriptions on the backs are hand-engraved and not stamped by any form of die. I may remind my readers that Mr. Hocking deems the processes in striking described by Mr. Caruthers as more suitable to pieces struck on one side only.⁷⁴ The script on the counters representing Baner and Bernhard is that generally used by the Passe family with much curved capital letters. The other three portraits have Roman lettering, but the shape of the numerals agrees with those seen on Passe's own work. On the other hand, the workmanship is nearer to, although not quite so fine as, the charming little memorial medallion of John Hampden (*Med. Ill.*, vol. i, p. 306, No. 129), who died at Chalgrove Field in 1643.⁷⁵

If we follow the modern research of Sir Sidney Colvin and Mr. Hind, Willem van de Passe was dead by about the end of 1637, and we have noted the date 1638 on Charles and Henrietta's portraits; but other members of the family yet lived abroad, and Payne, Faithorne the elder, Glover, Marshall, and

⁷⁴ See pp. 157-8.

⁷⁵ The inscription on the reverse *Inimica Tyrannis* shows that at the earliest this medal cannot have been engraved before the outbreak of the Civil War, even if made before the death of Hampden. It is beautifully executed by hand, but we must allow for the fact that gold gives a much better result than silver, and that there is little cross-hatching with which to compare other work.

others carried on the work of the school in England.⁷⁶

There are yet two series of counters, the date of which can only be decided on technical grounds—the biblical examples, of which two designs only are known to me, and the "Street Cries" in the collection of Mr. Lawrence.

7. *The Biblical Counters* (Pl. V. 6).

Well drawn and well engraved, these counters are of extreme rarity, and of the three specimens which I have seen two are duplicates.⁷⁷ These do not exactly reproduce one another line for line and the surface is suggestive of hand-engraving throughout. The work is very minute and is reminiscent of the many subject pieces executed by Simon van de Passe and his brothers, or the little biblical engravings by J. Sturt, in George I's reign. Willem van de Passe worked for John Bill, a publisher, who produced bibles and prayer-books, and both this artist and his brother were in the habit of engraving many a passe-partout and frontispieces for booksellers, and on the whole it seems more natural to place the silver engraving in the seventeenth century, but John Sturt, who was born in London in April, 1658, and was a pupil of White's, is best known for his prayer-book of 1717 for which he engraved silver plates, so that it seems possible that the biblical counters might be his. He died in 1730. I have, however, not succeeded in finding exact prototypes of the counters in such books as I have seen by Sturt, and the style is more minute and very reminiscent of Simon van de Passe's "Seasons", "Virtues", &c. Neither have I found amongst his or other

⁷⁶ According to Nagler, followed by Bryan, and tentatively by Singer, Willem van de Passe was living in 1660, but we have seen that Sir Sidney Colvin authoritatively states that he died before the close of 1637. See *Early English Engraving*, p. 104; also *Short History of Engraving*, by Arthur Hind, p. 451; and *Works of Foreign Line Engravers*, by the same author, p. 89.

⁷⁷ The duplicates are—one in the author's collection and one in the British Museum. That in the National Collection illustrated on Pl. V. 6 is unique. Both sides of the counters are engraved with scenes taken from the Gospel of St. Luke.

subject-prints in the British Museum any which might act as prototypes for Mr. Lawrence's set of "Street Cries", of which one additional counter only exists in the National Collection.

8. *The Street Cries.*

The set, which is numbered, is incomplete, but contains two duplicates and one repetition of numeral, although not of subject. Either the artist or pupil made this mistake in engraving or more than one set existed. The style is free and clever, there is little cross-hatching, and the finish is rather that of Hendrik Goltzius than that of the Passes, and reminds us more of the Elizabethan than of the Stuart counters. The spelling, with all its mistakes, is entirely English, and both script and dress carry us to the times of either James I or Charles I.⁷⁸ As, however, the working population were not greatly influenced by fashion, I thought it worth while to review the whole century and compare Marcellus Laroon's "Street Cries"⁷⁹ of 1688 with the map of England engraved in 1610 by Hondius for Speed's *Theatre of the Empire*, which is surrounded with types of different social grades. I notice that Abraham Goos, when he copied this plate in 1632 and again in 1646, although he made some alterations in the scene, retained the trunk-hose and ruffs of the time of James for his country man and woman. Laroon treats his subjects quite differently, but there is not so much alteration in costume as one might expect, and it is therefore difficult to date the counters accurately. Nevertheless, although no exact prototype is to be found in these books nor in Wenceslaus Hollar's important work on costume⁸⁰ published in 1640, Hollar's plates may be considered to indicate the latest likely date of issue, though not by any means the earliest possible.

⁷⁸ A charming little anonymous Dutch book of trades of about this period in Mr. Levis's collection shows much difference in dress from that figured on the counters. Also the nations depicted in Speed's *Prospect of the Famous Parts of the World* delineate the peasants very differently dressed from those portrayed on the counters.

⁷⁹ This artist, who signed his work "Mauron", lived from 1653 to 1702.

⁸⁰ *Ornatus Muliebris Anglicanus.*

Mr. Lawrence believes these counters to be struck from dies, mainly on account of certain flaws, to which Mr. Hill has referred in his article on *Passe*; but differences in the detail of the duplicates, in spite of some slight unevenness in the incised lines, incline me to believe that, like the Elizabeth counters of this open style, they were separately engraved on cast flans and some of these latter present similar flaws.⁸¹

Other engraved disks, or circular plaques, are to be found both before and after the first half of the seventeenth century, such as the portraits of Du Jardin (*Med. Ill.*, vol. i, p. 136, No. 93) in 1586, of Dove of Camberwell (?) (*Med. Ill.*, vol. i, p. 233, No. 94), and others; but with these it is out of place to deal here, for they are no counters, but like the larger oval plaques they were singly engraved for presentation to friends.

Whilst expressing a hope that the evidence I have brought together, although it has not solved the question of production, may help other students who possess these little toys to throw light upon the matter, I with all diffidence epitomize the conclusions to which I personally have arrived. Giving my opinion for what it is worth, I believe that in most cases the disks were cut from strips of cast metal, treated in the manner described by Mr. Parker (see Appendix I), and that the designs were engraved or impressed upon them before they were finally shaped. But I think that three different processes of decoration were followed in the course of the first half of the seventeenth century. Firstly, model counters of all

⁸¹ I have looked through the whole box of Heneage counters in the Franks collection in the British Museum, and have seen some of these flaws and uneven flans, although no two give exactly the same rendering of the crest and arms. Probably the flans are cast, but there can be no doubt that the Heneage counters are hand-engraved.

types were no doubt engraved throughout by hand and reproduced by the pupils with the help of a transfer like the plaques. But, secondly, I believe that experiments were made and pieces of cast silver were lightly stamped from dies and the details added by hand, and were even struck from finished dies made from a hand-engraved matrix and only slightly retouched and trimmed. Thirdly, I advance, though with less certainty, that, as the delicate dies failed, casting was tried, the designs being cast with the flans, which were then finished by hand and trimmed to fit the boxes. All or nearly all the counters show some signs of trimming and tooling.

HELEN FARQUHAR.

APPENDIX I.

ANALYSIS OF A COUNTER.

I have explained that by the research of Mr. W. B. Parker, F.I.C., of Rugby, who placed some of his valuable time at my disposal, an exhaustive analysis has been made of one of the counters. The composition, specific gravity, hardness, method of inception, and finishing have been ascertained, the interior structure being made visible to the naked eye by means of microphotographs, taken of a fracture, and of the metal itself after various treatments. The piece which, at the suggestion of Mr. Levis, Mr. Parker undertook to dissect was one of the better specimens of the whole-length "Sovereigns of England", of firm outline and without visible air-holes, which, although obviously finished by hand, does not quite reach the level surface of the engraved plaques, nor descend to the uneven outline produced by casting. He is of opinion that pouring molten metals into plaster of Paris or other moulds, at the time in question, would have entailed "difficulty, slowness of production, and expense", and that such a process was certainly not resorted to in the

piece which he analyzed, and would, although not impossible, have been almost prohibitive for continuous manufacture. Had the design on this specimen been cast and no further pressure been applied, the condition of the flan he finds by experiments, photographically demonstrated, would have been altogether different. He subjected a part of the disk to every kind of test, fracturing, hammering, rolling, annealing, and photographing every step upon the road.

Mr. Parker, whose report as Chief Chemist in a well-known laboratory is of the highest value, shows "that the metal was first cast as a strip nearly to the present thickness of the counter. . . .⁸² The strip-casting thus obtained was unsound from porosity and some dirtiness of scum", and a fracture was the result.⁸³ "The strip was then annealed for some time, probably at a temperature of 600°C. to 700°C., i.e. at a low yellow heat. . . ." It "was then cut into suitable pieces, probably squares", and these were flattened and "all visible defects removed . . . by means of a light cold hammering."⁸⁴ Mr. Parker suggests that the squares would probably be then sheared roughly into circular form; but for engraving by transfer we have seen that it would be more convenient, to preserve the regular outline, to secure by doubling down the parchment the relation of both sides. Be this as it may, Mr. Parker concludes that "the metal was then cleaned by pickling in dilute acids, probably nitric acid", and that after some simple burnishing, the engraving having been done by hand, a final trimming following the circular outline of the design as guide completed the counter.

It is noteworthy, as Mr. Parker remarks, that the chemical compound was selected by some one of experience, for the metal consists of tin 0.09 %, silver 66.36 %, copper 33.55 %: being "very close to the composition which has

⁸² This casting of the flan might account for the evidence of interior unevenness in the poorer specimens.

⁸³ It was this fracture across the counter which led to the suggestion by Mr. Levis that Mr. Parker should examine the internal structure.

⁸⁴ Mr. Parker explains that "cold hammering" means striking when the metal is quite cold, and that "with very ductile metals, such as this counter consists of, the annealings were not absolutely necessary, provided the reduction in thickness produced by this cold hammering was not greater than one-third of the original thickness of the strip".

the lowest melting-point of the whole series of possible alloys of silver and copper", namely, silver 71.9 %, copper 28.1 %. "The small amount of tin was an impurity, and by its union with a portion of the copper formed small hard crystals and spots" which appear in some of the photographs which Mr. Parker gave me, and which together with his detailed analysis may be consulted in the Department of Coins and Medals in the British Museum, space failing us for more illustration here.

The hardness of the counters was found to vary in different parts, and this, Mr. Parker writes, is due either to unsoundness in the cast flan or more probably to irregular hammering without subsequent annealing.

If the metal "happened to have been cold hammered with a small and not very heavy hammer", the blows being applied without uniformity "over all the surface and the metal not subsequently annealed, these sudden changes of hardness would be expected".

The hardness of the counter, less than that of rolled or hammered coin, suggests that cold hammering was employed to close up surface defects by spreading out the metal; but it is clear from the microphotographs of the fractured edges that the metal was not much removed from the original cast, and had the design been impressed by means of a die this condition would probably have been altered. It will thus be seen that Mr. Parker is convinced that the counter which he examined and analysed was engraved by hand on a disk or square cut from a cast strip of metal, properly treated and polished.

APPENDIX II.

ON COUNTER BOXES.

The boxes which contained the counters are usually cast and more or less tooled, but I doubt whether they were always produced by the same artist as the little receptacles. Nevertheless, we must bear in mind that once the design was made it was, if translated to a die, probably struck in a jeweller's press, or hammered on a piece of lead, as Mr. Carruthers has explained. In any case the box and its contents are most likely the output of the same shop, and

this the shop of the silversmith, and we therefore look for the evidence of a plate-mark or maker's mark on the box in the hope that we may see the name of one of the king's jewellers or even the signature of an artist, for the boxes are sometimes quite well engraved. Unfortunately very few of these boxes throw any light on the matter. Some—one in the Mediaeval Room at the British Museum and one of my own—are admirably engraved all over, the figure of Saturn with his scythe taking the place at the bottom where a maker's mark should be.⁶⁵ Some have the bust of Charles I on the lid and the head of Henrietta Maria below—and this in two different types, the one resembling the little cast badge catalogued in *Medallic Illustrations of British History*, vol. i, p. 358, No. 224⁶⁶—whilst a rougher kind shows a peculiar style of hair-dressing like a beehive, the queen wearing no ruff, a fashion which began in 1632.⁶⁷ Others are plain underneath, and of these one in my collection bears an indistinct W of the form used by Willem van de Passe in his signatures, and there are possible traces of another illegible letter, whilst another box in the Victoria and Albert Museum carries the letters plainly engraved W. P.⁶⁸

⁶⁵ A box in the collection of Mr. T. Whitcombe Greene of this type contains a very early set of the full-length counters.

⁶⁶ All have the same head of Charles I on the lid, set in a pierced border and taken from a cast medal (*Med. Ill.*, vol. i, p. 383, No. 288), and almost the same portrait is on *Med. Ill.*, vol. i, p. 361, No. 234, on a plain flan. This medal with another border was used in 1643 on a Testament and Prayer-book in the British Museum; this book, bound in crimson velvet with beautifully hand-engraved corners and clasps of emblematic designs, has also the portrait of Henrietta (*Med. Ill.*, vol. i, p. 358, No. 224), which appears on some of the counter boxes. The books were printed by "Barker and the Assigns of John Bill", the printer who issued some of Willem van de Passe's work, but the date 1643 is after the artist's death.

⁶⁷ An example with No. 224 below may be seen at the Victoria and Albert Museum, numbered 708. The queen therein wears a crown and high Medici collar of her early marriage. The other type is commoner; the Victoria and Albert and British Museums, Arley Hall, Mr. Whitcombe Greene, and Col. Croft Lyons all possess examples; the portrait is like a little copy of *Med. Ill.*, vol. i, p. 383, No. 213. The sides are mostly pierced, and more or less chased.

⁶⁸ This box is very shallow and is empty, and there is apart from its shape no certain evidence that it is a counter box, but

It is unlucky that the books containing the goldsmiths' names, together with their marks prior to 1697, were destroyed, a disaster which leaves us in the dark as to the interpretation of these letters, and Mr. Mitchell tells me that he has not found these initials, thus delineated, on any other piece of silver. Does W. P. stand for Willem Passe, the brother of Simon? He signed his prints in many ways, sometimes with the G. for Gulielmus, but oftener with the W. for Willem; or again he wrote his name at greater length or resorted to a monogram, his head of Robert, Earl of Leicester, in the *Heruologia* being marked *W*^P. We notice that the letter V., standing for van de, is introduced or omitted at will by every member of the family in turn.

But it will be said that Willem van de Passe was a maker of prints; what had he to do with the production of decorated silver objects, watches or pomanders, and the little boxes of toys with which every sixteenth- or seventeenth-century jeweller's shop was filled?

The two handicrafts were at that time much allied; we find persons of a similar name entered as clock-makers and mint engravers. Edward East was the maker of a watch belonging to Charles I.⁸⁹ John East was under-graver at the mint to the same king. Thomas East was a clock-maker in 1677, another or the same Thomas East was the seal engraver of James II. Nicholas Briot, Charles I's favourite maker of money, medal dies, and puncheons, also engraved copper-plates.⁹⁰ He was probably the cousin or nephew of François Briot of Lorraine, whose famous repoussé work Rose-dish and Ewer included a self-portrait of which no medallist need have been ashamed. To go a step further back, William Rogers was a jeweller in the time of Elizabeth to whom we owe several fantastic but excellent portraits of the queen, whilst Nicholas Hilliard, her miniaturist, was also her "aurifaber" and the maker of her Great Seal. He also described himself as "Imbosser of medallies of Gold"

the lid is of the usual type with Charles I's head. I have seen no box containing the early counters of James and Prince Charles.

⁸⁹ See Stuart Exhibition Catalogue, No. 462.

⁹⁰ Some of Briot's signed prints of saints are in the British Museum. Thieme, Band v, p. 28, and Benezet, tom. i, No. 757, mention portraits, which I have not succeeded in tracing. Briot assumed in France the title of Imprimeur de Taille-douce. The pictures of saints which I have seen are not equal to his productions as a medallist.

to her successor. It is needless to mention the many foreign goldsmiths, such as Michel Le Blon, Daniel Mignot, and Theodore de Bry, &c., of the sixteenth century, equally famous for the engraved plates, intended for jewellers' designs, and for their execution of the actual goldsmiths' work and enamelling.

APPENDIX III.

ON THE FAMILY OF VAN DE PASSE.

Simon and his brother Crispin, born according to the most recent authorities about 1595 and 1593 or 1594 respectively,²¹ with Magdalena, whose birth is placed in about 1596, and Willem, dated by Mr. Hind as from about 1598 to 1637, were the children of Crispin van de Passe the elder, and all followed their father's profession.²²

This artist never himself visited England; his "early activity centres in Cologne, whither he had migrated from Holland not later than 1594. By 1612 he was settled in Utrecht, remaining there till his death in 1637."²³

The year 1612 is thought by some authors to have been marked by a short visit paid by Simon to England.²⁴ In any case he started his English portraits at this period,

²¹ See *Evelyn and Pepys on Engraving*, by H. C. Levis, p. 16; and Singer's *Künstler-Lexicon*, pp. xi and xiii.

²² See Mr. Arthur Hind's *Short History of Engraving*, pp. 123 and 451, ed. 1908. Mr. Hind mentions a third Crispin as probably the son of Willem, or according to Singer and Nagler perhaps of Simon. The chief activity of Crispin II, Simon's brother, was in Paris, at least from 1617 to 1627, but the fact that the Christian name was often repeated in the family has caused some controversy as to the attribution of signed works. Nagler places the births of all the Passe family a good many years earlier than modern research: that of Crispin II in 1570 or 1576, that of Simon in 1574 or 1581, that of Willem in 1572 or 1580, and that of Magdalena in 1576. Franken, who makes Willem the youngest, gives "environ" 1590 for Simon, and "vers" 1600 for Magdalena; whilst Singer calls Willem the eldest, b. 1590, and prints Crispin, b. 1593-4, and Simon, b. 1595.

²³ Hind, p. 123.

²⁴ Nagler's *Künstler-Lexicon*.

engraving his Prince Henry with the lance,⁹⁵ which we may note as the prototype of both full-length and half-length counters produced many years after he had left this country. According to others it is more probable that the picture was executed at Utrecht some months before the Prince's death "from some drawing supplied to him from England for the purpose".⁹⁶ He was, moreover, working in Holland in 1613, although he in that year engraved a small portrait of Prince Charles, which, however, affords no assistance to our study of counters, the picture not being one of those reproduced in silver.

Apart from this possible visit Simon's actual residence in England extended over a period of at most five or six years from 1616 (the date given on one of his plaques) to 1621 or 1622, he being joined by his brother Willem about a year before his departure for Copenhagen, where after a few years he in 1625 became Regius Sculptor to King Christian IV.⁹⁷

May we not reasonably suppose that his brother Willem, who succeeded him in his ordinary profession of book illustrator in 1620, carried on his school in other respects?

It is not precisely known who practised in his workshop, but John Payne is usually cited as one of his pupils.

There were younger members of the family, but we have no certain evidence that they worked in England. There is in the Victoria and Albert Museum a silver plaque signed Sim. de Passe and dated 1623, which should, I think, be attributed to a younger Simon than the celebrated artist.⁹⁸

⁹⁵ *Early Engraving and Engravers in England*, Sidney Colvin, 1904, p. 99. We may note that William Hole engraved a similar portrait of Prince Henry, which first appeared in Drayton's *Polyolbion* in 1613. It is thought that both artists worked from a common original, now lost, but then at Whitehall. The print of Prince Henry is sometimes found bound up in *Basilioslogia*, but only Hole's version, which was reissued in 1622.

⁹⁶ *Early Engraving*, p. 99, and explanation of Pl. xxiii.

⁹⁷ *Ibid.*, p. 104.

⁹⁸ According to Bryan's *Dictionary of Engravers* there was a second Simon, son of Crispin II, or possibly of Simon I (see Singer's *Künstler-Lexikon*). He it is said worked with our artist, Simon I, at Copenhagen, whither the latter betook himself about 1622. The date of the plaque is 1623. No date is given for the birth of the younger Simon, but unless Crispin II was born between 1570 and 1576 (according to Nagler), or in 1585 as stated by Bryan, rather than 1593-4 as believed by Mr. Lewis, who

It is evidently intended for a box top, although not of the shape suited for counters. The faulty drawing and rather childish although spirited execution almost forbids an attribution to Simon van de Passe, the son of Crispin the elder, then at the height of his reputation, and this little box-lid remains an enigma, the script, although of the time, differing from Simon's many forms of signature on prints and plaques. The piece is, however, of interest, showing as it does the various hatching and cross lines practised by the Passe family in shading as introduced on the background of the counters.

follows Franken's *L'Œuvre des van de Passe*, p. xi, published in 1881, and Singer's *Künstler-Lexicon*, published in 1898, Crispin II could hardly be old enough to be the father of a son who was already engraving in 1623. Nagler imputes to Crispin III, the son of Simon I, the same prints as those attributed by Bryan to Simon II, and Singer brackets the two persons with a query under one head, pointing to lack of proofs of identity and comparison of names, Crispin III only being noticed by later writers.

MISCELLANEA.

THE MEDAL OF HENRY VIII AS SUPREME HEAD OF THE CHURCH.

IN that entertaining but little known work, *The Travels of Nicander Nucius of Corcyra*,¹ the following passage occurs, which is interesting as a contemporary description of the "Supreme Head of the Church Medal".² Nicander was in England in 1545, the very year when the medal was issued.

"Ὅθεν καὶ χρυσοῦν κέρμα κόπτεσθαι προστάξας ὁ βασιλεὺς, πέντε καὶ εἴκοσι ὀλκὸν χρυσίων φέροντα, τὴν τοῦ βασιλέως ἔχον εἰκόνα κεχαραγμένην γράμμασιν Ἑβραϊκοῖς, καὶ Ἑλληνικοῖς, καὶ Ῥωμαϊκοῖς τοιοῖσδε περικυκλωμένην. "Ἐνρίκος ὁγδοος, Θεοῦ χάριτι βασιλεὺς Ἀγγλίας, Φραγγίας, καὶ Ἰβερνίας, πίστεως προσταύτης, καὶ τῆς Ἀγγλικῆς καὶ Ἰβερνικῆς ἐκκλησίας ἀκροτάτη κεφαλὴ." Τοιαῦτα μὲν ἐν τοῖς νομίσμασιν ἐγκεχώρευται. In the margin stands ἐπιγραφὴ τοῦ νομίσματος τοῦ βασιλέως Ἀγγλίας.

The editor of the *Travels*, or rather the Rev. Isaac Fidler who did the work for him, remarks that "there seems to be no authority for the coin with the trilingual inscription, as described by our author". He obviously cannot have made very exhaustive search.

Nicander's grammar is sadly at fault, but it is clear that he means that the King ordered a "coin" to be struck, weighing 25 gold pieces (*χρυσίων* for *χρυσίων*), having his portrait engraved, and surrounded by the well-known inscription in Hebrew, Greek, and Latin. It is true that his version of the inscription differs in details from that on the medal; he inserts Θεοῦ χάριτι, replaces ΤΡΙΣ ΒΑΣΙΛΕΥΣ by the more explicit βασιλεὺς Ἀγγλίας, Φραγγίας, καὶ Ἰβερνίας,

¹ *The Second Book of the Travels of Nicander Nucius of Corcyra*, edited . . . by the Rev. J. A. Cramer (Camden Society, 1841), pp. 44-5. I am informed by Mr. Madan, Bodley's Librarian, that the gaps in the Bodleian MS., from which Cramer edited this book, have since been supplied by Eysenhardt in his edition (Hamburg, 1882); but this is unfortunately not accessible to me.

² *Med. Ill.*, i, pp. 47-8, No. 44.

varies the whole expression about the Headship of the Church, using *ἀποράνη* instead of **AKPH** and omitting **ΥΠΟ ΧΡΙΣΤΩ**, and omits the letters **H. R.** and the date and place of issue, *Londini* 1545. These variations, however, are just what one might expect from a contemporary popular writer.

It is interesting that Nicander gives the weight of the medal as 25 gold pieces. The British Museum specimen weighs 957 grs. troy, the equivalent of 25 pieces of 38.28 grs. each. The only current English gold coin which approaches this weight is the half-angel of 40 grs. normal, a curious unit to reckon by. The weight of the medal is more nearly equivalent to that of twelve angels of 80 grs.

The Hunterian specimen of the same medal, I am informed by Dr. G. Macdonald, turns the scale at 936 grs., and may originally have been a little heavier. This is the equivalent of 25 pieces of 37.44 grs., which is even more difficult to fit in with any known denomination of English coin. It is possible that Nicander is speaking in terms of some foreign coin; but I am unable to identify it. Other possibilities are that the specimen which Nicander saw or heard of was of a quite different weight from those which have survived, or that he made a mistake and wrote 25 instead of 20. For 20 gold crowns of the contemporary fourth and fifth issues would weigh 960 grs.

It may be observed that the only extant gold specimen of the coronation medal of Edward VI, which, if Nicander is right about the medal of Henry, might also be expected to be equivalent to an integral number of "gold pieces", weighs 1251.3 grs. That is, within a few grains, the weight of 26 crowns.

I do not know whether it has ever been noted that, since these two medals, obviously official productions, are clearly by the same hand, they must be the work of Henry Bayse or Basse. For, as Mr. Symonds has shown,² Basse was appointed chief graver on Nov. 5, 1544, and retired in 1549. Under-gravers (Robert Pitt and John Lawrence) were not appointed before 1546. It follows that Basse, who was alone in office when the first medal was made, was responsible wholly for that first medal, and at least for the design of the second.

G. F. HILL

² *Num. Chron.*, 1913, p. 355 f.

MACGREGOR'S FLORIDA MEDAL.

HAVING recently found a specimen of this rare medal, I think that the following notes of the result of my search for information about it may be of interest.

The medal may be described as follows :

Obv. A cross farchy within a laurel wreath.

Leg. DUCE MAC GREGORIO—LIBERTAS
FLORIDARUM.

Rev. | 29 JUNII | 1817 | between two laurel branches.

Leg. — AMALIA — VENI VIDI VICI —.
Bronze. Size 1.2.

A description of the medal is given in Neumann, *Beschreibung der bekanntesten Kupfermünzen*, vol. iii. No. 21614, without comment. The only other mention of it which I have been able to find is in the catalogue of the Bushnell collection of American coins sold in New York in 1882, where a specimen in bronze formed lot 349 and is stated to be excessively rare, only two or three being known.

Sir Gregor MacGregor, a South American adventurer, calling himself His Highness Gregor, Cacique of Poyais, is in the *Dictionary of National Biography*, vol. 35, p. 95, stated to have been the grandson of Gregor MacGregor, Laird of Inverardine in Breadalbane in George II's reign. He is said to have been at one time in the British Army. He went out to Caracas in 1811 to settle and aid in the struggle for South American Independence. In 1817 he was promoted to the rank of General of Division in the Venezuelan Army. He left in 1821 for Europe to endeavour to introduce Scottish immigrants to the Poyais territory in Central America, but he failed. In 1839 he was, in recognition of his services, restored to his former military rank by the Venezuelan Government, and died at Caracas a few years later.

The filibustering incident commemorated by the medal is described in the *History and Topography of the United States*, by John Howard Hinton, A.M., London, 1830, vol. i. p. 469, as follows :

"In the summer of this year (1817) an expedition was undertaken against East Florida by persons claiming to act under the authority of some of the revolted Spanish Colonies. The leader of this expedition styled himself :

'Citizen Gregor MacGregor, Brigadier-General of the Armies of the United Provinces of New Granada and Venezuela, and General-in-Chief employed to liberate the provinces of both the Floridas, commissioned by the Supreme Governments of Mexico and South America.' The persons that combined for this purpose took possession of Amelia Island at the mouth of St. Mary's river, near the boundary of the State of Georgia. The President (of the U.S.A.) apprised of this transaction ordered an expedition consisting of naval and land forces to repel the invaders and to occupy the Island. A squadron under the command of J. D. Henley, with troops under the command of James Banhead, arrived off Amelia Island on 22nd December, and the next day took possession of it, hoisting the American flag at Fernandina. The President in a message to Congress relative to the capture observed: 'In expelling these adventurers from these posts it was not intended to make any conquest from Spain or to injure in any degree the cause of the Colonies.' The real reason for the measure seems to have been that the invasion interfered with endeavours which were then making on the part of the United States to obtain the cession of the Floridas from the Spaniards." A treaty for this purpose was concluded at Washington on 22nd February, 1819. This treaty was reluctantly ratified by the King of Spain in 1821, and possession was taken of the provinces by the United States in that year.

It will be noticed that MacGregor was in possession of Amelia Island for nearly six months before he was turned out.

F. WILLSON YEATES.

NOTICES OF RECENT PUBLICATIONS.

A Catalogue of English Coins in the British Museum. The Norman Kings. By George Cyril Brooke, B.A. Vol. i, pp. cclv, Epigraphical Table and 62 Plates. Vol. ii, pp. 462. Oxford University Press. 1916. £2.

THE Editors of the *Numismatic Chronicle* being of the opinion that it will be of interest to have a criticism of Mr. Brooke's *Catalogue* from an archivist's point of view, I gladly accept their invitation to note some points which have struck me in reading the book.

To a reader who is no numismatist the most striking feature of the book is the advance made in the scientific treatment of the problems presented by the English coinage. It recalls Aristotle's comparison of Anaxagoras with the earlier natural philosophers. The numismatic evidence of the method of coining and the succession of types is marshalled in such a way that the unlearned reader can make a reasonable estimate of its nature and cogency. The arguments from the classification of Finds, from Mules, from Epigraphy, and from cracks in the dies, are set out with a clearness which makes the hypotheses of earlier handbooks seem arbitrary and fanciful. Not quite enough is said about the fineness of the standard silver, and Sir William Roberts-Austen's analyses of coins of William I and Henry I might have been mentioned (*Dialogus*, p. 31). These give the proportion of alloy as $18\frac{1}{2}$ and $20\frac{1}{2}$ dwt. respectively. A comparison of these figures with those quoted from Mr. Symonds makes us wish for a fuller investigation. We may in the mean time accept the traditional proportion of 18 dwt.

The evidence of the *Dialogus de Scaccario* has been somewhat neglected in other parts of the Introduction. Thus the passage might have been quoted in which Richard the Treasurer (or at least an early interpolator) asserts that Cumberland and Northumberland had no county mints before Henry II (*Dialogus*, p. 63). The same passage supplies documentary evidence that the farm of the county had to be paid in coin of the current issue (Introd., p. xxxiii).

The use of the moneyer's name to fix responsibility (p. cxxxvii) is also plainly asserted (p. 88). This evidence, it is true, is not contemporary, but it claims to represent the tradition of the reign of Henry I.

The statement that worn coins would automatically find their way to the melting pot is inconsistent with "Gresham's Law" (p. xv), and consequently with the statement on p. i.

On the whole the evidence from the coins and from history is very well combined, and Mr. Andrew's interpretation of the passage about the cutting of the penny certainly seems to deserve adoption and to throw a new light on the subject. The editor shows a wise discretion in dealing with the various hypotheses which have been put forward.

The British Museum and the author are alike to be congratulated on the *Catalogue*.

CHARLES JOHNSON.

Sardis: Publications of the American Society for the Excavation of Sardis. Volume xi: Coins. Part I. 1910-14. By H. W. Bell. Leiden (E. J. Brill, Ltd.), 1916. Printed at the Oxford University Press. Pp. xiii+124, with 2 Plates. Large 4to.

This, though numbered xi, is the first part to appear of the series dealing with the American excavation of Sardis. It is brought out regardless of expense, and executed with that minuteness of detail which characterizes so much of the best American scholarship. The descriptions are on the general plan of the more recent volumes of the British Museum Catalogue; in addition, as is proper in an excavation report, we have columns recording the place and date of finding. Relative die-positions are, however, not noted. The earliest coins are a silver half-stater and a hekte of the Croesean period; there are also two fifth-century Persian sigloi. It is disappointing that more coins of the early period, when Sardis was first a regal Lydian and then perhaps a Persian imperial mint, have not been found; there are indeed only sixteen pre-Alexandrine coins recorded. On the other hand, we have no less than forty-nine Alexandrine tetradrachms of various dates, and some very fine Seleucid tetradrachms (none, however, later than Antiochus III). Of the coins of Sardis itself we note one of imperial date, with a god, probably Dionysos, whose name is given as ΘΟΠΑΙΟC. The Roman and Byzantine coins are catalogued with as much care as the Greek; and in the

Byzantine series Mr. Bell is able not only to make some considerable advances in detail on the work of Wroth and Tolstoi, but also to establish with certainty the attribution of coins to the usurper Theodore Ducas Mankaphas, who was in power at Philadelphia about A.D. 1189 and 1204. A billon nomisma, on which the first four letters of his name Mankaphas are legible, shows that he also bore the name Ducas, and makes it possible to give him the two coins described by Wroth in his *Catalogue of the Vandals, &c.*, p. 196, Nos. 5 and 6. We congratulate Mr. Bell on his work, and are glad to be able to say that the coins from the excavations at Assos, which have so long remained undescribed, are to be dealt with by his competent hands.

G. F. HILL.

JUTLAND BANK MEDAL.

THE Prizes offered by Sir Arthur Evans in the competition for the best models for the above medal have been awarded in the following order:

Mr. Harold Stabler.

Mr. A. Bertram Pegram.

The Bromsgrove Guild (for an obverse design).

Mr. Charles Wheeler (for a reverse design).

Owing to the fact that more than two designs were considered worthy of recognition, Sir Arthur Evans has increased the sum available for prizes to meet this case. It is his hope to issue three medals, the third being a combination of the designs which won the third and fourth prizes.

The designs were judged by Sir Arthur Evans, with Mr. G. F. Hill, of the British Museum, and Mr. Eric Maclagan, of the Victoria and Albert Museum, as assessors.

VII.

SOME RARE COINS OF MAGNA GRAECIA.

(SEE PLATES VII, VIII.)

THE following coins in the McClean Collection (Fitzwilliam Museum) seem either to be unpublished varieties of sufficient interest to merit separate treatment, or else to throw some new light on problems which have already attracted attention. The most important are the coins of Catana, Entella, and a "transitional" tetradrachm of Syracuse. Some interesting restruck coins are included, and I have taken this opportunity of suggesting some modifications in grouping the coins of Graxa.

CALES.

1. *Obv.*—Head of Apollo, r.; hair long and tied behind neck; border of dots.

Rev.—**CALEΓ** around to r., the letters mostly double struck. Cock, r.; to l., star of eight rays; border of dots.

AR $\frac{1}{2}$ 15.5 mm. Wt. 53.2 grs. (3.45 grms.).

[PL VII. 1.]

The style of the obverse is poor, and the exact form of the letters on the reverse hard to make out. It cannot be doubted, however, that the inscription **CAIEN[O]** was intended. Sambon, *Monnaies antiques de l'Italie*, p. 358, after No. 915, mentions a similar coin in the Vienna cabinet reading **AIENC**, which Garrucci has proposed to treat as a production of

natives of Cisalpine Gaul imitating the type of Cales. Garrucci, however, p. 80, No. 18, reads the initial **C** on the Vienna coin. The McClean specimen will help to establish the true reading, whether the coins are to be considered as genuine products of the Cales mint or imitations.

NEAPOLIS.

2. *Obv.*—Head of Parthenope, r., wearing plain necklace and drop earring of lotus pattern; hair bound with broad diadem tied with bow over forehead; curls loose on crown of head and thickly massed above ear; meander pattern on diadem.

Rev.—Man-headed bull, r., head facing; above, Nike crowning him.

At \downarrow 20.5 mm. Wt. 135 grs. (8.75 grms.).

[Pl. VII. 2.]

This splendid didrachm is from Hirsch *Catalogue* xi, No. 8, where full justice is done to its artistic beauty, but the curious weight not recorded, though the coin is so much in excess of the maximum of c. 118 grains for the Campanian standard. The fact is that the coin is plated, and thus affords a rare instance of a plated coin weighing considerably more than the ordinary weight.

For these anepigraphic coins see Sambon, *Monnaies antiques de l'Italie*, No. 347, and notes to Nos. 342, 352. It is thought that the dies for the reverse type were sometimes cut in the mint of Nola. Professor Oman kindly allows me to say that he favours this attribution, and that he once had a coin of these types with the top parts, visible in the exergue, of some letters which seemed to him remains of the ethnic of Nola in one of its forms.

3. For the other coin of Neapolis illustrated on Pl. VII. 9, see below under No. 19.

GRAXA.

4. Five coins of this town are given by Dr. Head in *Historia Numorum*², p. 52, where they are treated as all belonging to the same series. The largest piece is a quadrans with value marks •••. Others marked with a star or crescent are termed unciae, and in two cases $\frac{1}{2}$ unciae. The fifth coin is merely a variety of the quadrans. Following Sambon, *Recherches sur les Monnaies*, &c., 1870, p. 239, the coinage is described as among the latest issued in Southern Italy. It would, in fact, on this grouping all be struck on the semuncial standard between the years 200–89 B.C.

There are, however, other coins of this town, one with the ordinary types of the quadrans, but without marks of value, others with the value marks of the sextans, and three or four with types not mentioned by Head, one of which reads the name ΓΡΑΞΑ in full, and so enabled Millingen to assign all the coins reading ΓΡΑ to this town. It may, then, be well before proceeding further to give the list of known varieties demanded by Wroth (*Num. Chron.*, 1904, p. 271). Our chief authorities are Sambon, *op. cit.*, whose list is almost complete; *B. M. Cat.: Italy*, p. 221 (uncertain town of Calabria); and Garrucci, *Monete d'Italia*, Pl. xcvi. The coins appear but rarely in the sale catalogues, though an occasional specimen is sometimes noted in a "lot de bronzes". It is unfortunate that Lot 238 in the Nervegna-Martinetti Sale is dismissed with the words "Important lot de bronzes 23 p., quelques-unes très rares". These were all of Graxa.



A. With the head of Zeus and eagle.

(1) *Without marks of value.*

- 1.
- Obv.*
- Head of Zeus, r., laureate; border of dots.

Rev.—ΓΡΑ in ex. Two eagles, r., on thunderbolt; in front, crescent.

Hirsch *Catalogue* xv, No. 354.

Varieties: (a) With countermark on the reverse, •X•, B. M. Cat. 1 and 2;  Maddalena Sale, No. 237;  Garrucci, Pl. xevi. 4 and 5, but the description of No. 4 (p. 120) gives •X• between two globules, and no crescent.

(b) Sale Catalogue, M. le Comte G. B. de C, Florence, 1903, No. 86. No thunderbolt or crescent is mentioned.

(2) *Quadrantes with marks of value.*

- 2.
- Obv.*
- The same type.

Rev.—The same type; no inser.; behind [:]; in front, star; border of dots. In the British Museum: Wroth, *Num. Chron.*, 1904, p. 291. I have to thank Mr. Hill for casts of this coin.

- 3.
- Obv.*
- The same type; behind, : ; border of dots.

Rev.—The same type and inscr. in ex.; KPH around to l.; : to r.; linear circle.

B. M. 3-5; Hunter, 1; McClean Coll.; others.

Varieties: (a) A in inscr., B. M. 5.

(b) . . . below all instead of to r. B. M. 6; McClean Coll.

(c) ΘΕΟΛ in place of KPH. Sambon, p. 230, No. 8.

(d) To r., on reverse, crescent. De Moltheim *Catalogue*, No. 90.

- 4.
- Obv.*
- The same.

Rev.—One eagle only, otherwise the same. McClean Coll.

Varieties: (a) Value marks on obverse below neck; no inscr. to r. on reverse. B. M. 7.

(b) Value marks shown by stars; KPH on reverse inwards. Garrucci, Pl. xcvi. 7.

(c) Cp. Mionnet, Suppl. 1, p. 355, No. 1095 (perhaps a variety of 1 (a)).

(3) *Sextantes with marks of value.*

5. *Obv.*—The same type; behind, *.

Rev.—Eagle on thunderbolt. KPA or KPH.
Sambon, p. 230, No. 10.

6. *Obv.*—The same type.

Rev.—Two eagles on a base. ΓPA. In the field, probably of reverse, crescent and star *.
Sambon, No. 11.

Note.—Mionnet, Suppl. 1, p. 354, No. 1090, describes a similar piece with a star and crescent on the reverse, and a crescent on the obverse. I have not met these sextantes save in Sambon and Mionnet.

B. With the scallop-shell and eagle.

(1) *Without marks of value.*

7. *Obv.*—Scallop-shell.

Rev.—ΓPA in ex. Eagle, r., wings spread, on thunderbolt.

Varieties: (a) Perhaps the reverse always has a star of eight rays or a crescent to r. See B. M. 8-10. One poor specimen in the McClean Coll. may be simply as described above. Another example, with star, De Moltheim *Catalogue*, No. 91.

(b) Eagle with closed wings. B. M. 11.

8. *Obv.*—The same.

Rev.—ΓPA above. Eagle, r., standing with closed wings or short bar; to r., crescent.
B. M. 12.

(2) *Sextantes with marks of value.*

9. *Obv.*—The same but marks of value . . to l. and r.

Rev.—ΓΡΑ below. Eagle as before; to r., star.

In the British Museum. I have to thank
Mr. Hill for casts of this rare coin.

Variety: Garrucci, Pl. xcvi. 8, with ∅ on the reverse.
These are the only two specimens I
have met.

C. With scallop-shell and varying reverse.

10. *Obv.*—The same.

Rev.—ΓΡΑ below. Thunderbolt; above, star.

Garrucci, Pl. xcvi. 1.

Variety: (a) Without the star? B. M. 13. A very clear specimen with an eight-rayed star has been added to the British Museum collection since the catalogue was printed. A poor specimen in the McClean Coll. seems to have the star, which probably always occurs.

11. *Obv.*—The same.

Rev.—ΓΡΑ in ex. Dolphin, r.; above, crescent to l. of star; dotted ex. line.

B. M. 14.

Varieties: (a) No star; linear circle. B. M. 15.

(b) Crescent above, star below; to l. of star, apparently ∅; no exergual line; linear circle? McClean Coll.

(c) No symbols. Garrucci, Pl. xcvi. 12.

D. Other types.

12. *Obv.*—Star and crescent.

Rev.—Thunderbolt and crescent. ΓΡΑ.

Sambon, p. 230, No. 6.

13. *Obv.*—Young male head in laureate pileus, r.

Rev.—ΓΡΑΞΑ in ex. Two eagles, r., wings closed, on plain exergual line.

Millingen, *Bull. Arch. di Napoli*, 1854,
p. 121; Sambon, p. 229, No. 1;
Garrucci, Pl. xcvi. 2.

14. *Obv.*—Head of Apollo, r., laureate.

Rev.—ΓΡΑ (ΓΡΑ in description) in ex. ; two eagles, r., wings closed, on thunderbolt ; below all, . . .
Garrucci, Pl. xevi. 3.

There will be no dispute over the coins described under Nos. 2-6. These are quadrantes and sextantes struck on the semuncial standard (c. 200-89 B.C.), and contemporary with the similar coins of Paestum. With them must be classed the rare No. 9, which is another sextans of different type. The questions which then require answer are, first, whether the star and crescent on other coins mark them as the uncia and $\frac{1}{4}$ uncia of the same series? secondly, what is the relation of No. 1 to other coins of these types, the quadrantes and sextantes Nos. 2-6? thirdly, if the crescent and star are not marks of value, are the other coins contemporary with Nos. 2-6?

The difficulties against regarding the star and crescent as value marks are, I think, insuperable. In the first place, No. 1 will not fit into this scheme. The coin is of the ordinary quadrans type, but without the value marks . . . But in three cases there is a crescent on the reverse (Hirsch *Cat.* xv, 354; B. M. 1 and 2). *Ex hypothesi* these pieces should be $\frac{1}{2}$ unciae. But they weigh 66.6, 58, and 48 grains respectively, these weights ruling higher than the weights of the quadrantes. On the other hand, No. 10, with the star, should be an uncia; but it is a coin of low weight (McClellan Collection 25 grains). It would rightly be objected that this might only point to a lowering of the standard, that according to No. 4 (*b*) stars do sometimes take the place of pellets as value marks, and that in any case the weights of such small bronze coins

can prove nothing, especially at this period. But if we look at No. 2 we find that although this is a quadrans with value marks it also has the star, and that, too, on one and the same side. (This coin is possibly a sextans, but the argument holds good.) Again, No. 6, on the authority of Sambon, is a sextans with value marks **, a crescent, and a star all on the same coin.

We then turn to the scallop-shell series. One of these (No. 9) has the marks of a sextans ** on the obverse, and also a star on the reverse. No. 11 is, according to Head, a $\frac{1}{2}$ uncia with no distinctive signs; but specimens of this coin have both a crescent and a star, sometimes a crescent alone, sometimes neither.

The star and crescent must, then, be regarded as symbols. It has been shown that they occur together on No. 11, and that the star is found on a quadrans with value marks (No. 2). The question then arises whether No. 1 without value marks is contemporary with Nos. 2-6, which show the same types with value marks, and whether No. 9, which is the solitary example of the scallop-shell type with value marks, draws all the unmarked coins of that series into this same chronological period. We should expect to recognize a difference in time between coins of the same types at the same town when one set bears value marks and the other is without them. Now the coins are found on the coast of the Gulf of Tarentum. Head compares them with coins of Brundisium, a good comparison so far as the coins with the head of Zeus are concerned. But the series with the scallop-shell, although that type is also found at Brundisium, may surely be compared more advantageously with the small bronze

coins of Tarentum, which have this same obverse type and a reverse varying between Taras on the dolphin, two dolphins, or a cantharus for reverse type. Here we may notice that No. 11 has a dolphin for reverse type. I venture to suggest that these two series are contemporary, and that as the Tarentine bronze is dated c. 320-228 B.C. the scallop-shell series at Graxa starts at any rate not later than c. 228 B.C., perhaps about 240 B.C. The following chronology may then be regarded as approximate:—

1. *Circa* 240-200 B.C.

- (a) Scallop-shell series without value marks (Nos. 7, 8, 10, 11).
- (b) Nos. 12, 13, 14, of which No. 12 is connected with No. 10 through the reverse type.

2. Shortly before 200 B.C.

- (a) Zeus and eagle types without marks of value (No. 1).
- (b) Perhaps Nos. 13 and 14 (mentioned above under 1 (b)).

3. *Circa* 200-170 B.C.

- (a) *Quadrans*. Zeus and eagle types ... (Nos. 2, 3, 4).
- (b) *Sextans*. Zeus and eagle types .. (Nos. 5 and 6).
- (c) *Sextans*. Scallop-shell and eagle types .. (No. 9).

Some further considerations in favour of this grouping may now be given. The abbreviated names (magistrates?) **KPH** or **KPA**, and in one case **ΘΕΟΛ**, only occur on coins of 3 (a) and (b), and so these coins of the semuncial standard seem to be separated in time from the majority of the scallop-shell series and the other coins with varying types which never bear these names. It might be objected that the sextans 3 (c) has not these names, but it must be remembered that only two specimens of this type have been noted. I think that this second sextans is correctly placed. It might

possibly, but improbably, be placed in 1 (*a*) with the others of that type, the marks of value being explained as imitated from the later small silver obols of Tarentum which circulated in such numbers.

Secondly, I have dated the last group to c. 200-170 B.C. rather than down to 89 B.C. As two magistrates only are met with on the coins, and the coins are themselves so rare, they can hardly have been in issue for over a century.

Thirdly, in regard to group 2, I have placed No. 1 before the others of the same types, but bearing value marks, just as 3 (*c*) has been placed later than 1 (*a*). And the varieties of this coin are highly instructive. Five of them are countermarked. It will, I think, be hard to resist the conclusion that the countermark in each case represents marks of value. The coins were issued shortly before c. 200 B.C., and when the sem-uncial standard was adopted soon afterwards the first step taken was to countermark the older issue with the new marks of value.

With regard to Nos. 13 and 14, where the obverse type is a male head, it is difficult to form a judgement without seeing the coins. They do not, however, bear value marks, and to judge from Garrucci's illustrations their style is of the third rather than of the second century B.C.

TARENTUM.

5. *Obv.*—Naked rider, r., wearing crested helmet; aiming downwards with spear in r. hand; reins and spears in l. hand and shield on l. arm; ΔAI below horse.

Rev.— $TAPA\Xi$ around to r. Taras, l., astride dolphin; in r. hand trident, and in l. hand shield with hippocamp blazon; below, murex; ΦH in field to l.

AR stater.

6. *Obv.*—Naked rider, r., crowning himself with r. hand ;
below, capital of Ionic column ; ΣA below
horse.

Rev.— $TAPA\Sigma$ around to r. Taras, l., astride dolphin,
a water-snake in r. hand and a branch in l. ;
 KON below. [Pl. VII. 3.]

\mathcal{A} stater.

The letters ΦH on the reverse of the first of these coins are quite legible, though the last two bars of the H are worn down and almost impossible to see in a reproduction. For this very rare variety see Evans, *Horsemen of Tarentum*, p. 102, note 132.

A variety reading KON is not known to Evans, who regards KOI as invariable (*op. cit.*, p. 99, with note 130). KOI is, however, to be read on a fine gold stater from the Ashburnham Collection, and now in the M^cClean cabinet, where the Catalogue (No. 6) gives KOW .

UXENTUM.

7. *Obv.*—Head of Athena, r., wearing crested Corinthian helmet ; border of dots.

Rev.— $KAI\Sigma IE\Sigma$ [$EOYMENTHI$] above and below
thunderbolt ; below, star of eight rays.

$\mathcal{A} \rightarrow 22$ mm. Wt. 186.1 grs. (12.06 grms.).

[Pl. VII. 4.]

The final letter of $KAI\Sigma IE\Sigma$ could not be read on the other known specimen in *Hunter Cat.*, i, p. 152, where Mr. W. M. Lindsay has suggested that the word is in the nominative case (-e for the fuller -es), the inscription meaning "Caesius (magistrate) at Uxentum".

METAPONTUM

8. *Obv.*— $M \Sigma TA$ to r. downwards. Ear of barley ; raised
cable border.

Rev.—Apollo to front, head r. ; r. hand on hip, in l.
hand strung bow ; laurel wreath border.

$\mathcal{A} \rightarrow 18$ mm. Wt. 56.5 grs. (3.66 grms.).

[Pl. VII. 5.]

As this coin is a half-stater, and since Metapontum followed the division by thirds and sixths during the fifth century, the piece has usually been attributed to the period c. 350–330 B.C. (Macdonald, *Hunter Cat.*, i, p. 92, No. 27; Head, *Hist. Num.*², p. 76). On grounds of style and epigraphy we must date this coin at least a century earlier, where it falls into line with the other Apollo coins of the period following c. 470 B.C. The letters **ΜΕΤΑ** are very clear on the fine specimen in a Roman sale of April 6, 1908, Pl. ii. 70. Moreover, a good parallel for the unusual method of division can be found for this period at Croton, where a quarter-stater was struck (Benson Sale Catalogue, Sotheby, 1909, No. 105, wt. 28½ grs. There is also a specimen in the British Museum, wt. 27.4 grs. (*Num. Chron.*, 1914, p. 99, No. 5).

NOTE—Since these coins of Metapontum, and many others included in this paper, were discussed at a meeting of the Royal Numismatic Society in November, 1915, an article has appeared by M. A. Sambon in the *Revue Numismatique* for 1915, pp. 83–100. On p. 97 M. Sambon has anticipated the conclusion arrived at above with regard to the Metapontine half-stater, but does not mention the epigraphical evidence or the parallel from Croton.

M. Sambon is, however, chiefly concerned with coins of Metapontum which he believes may be dated to the period of the Lucanian domination after 300 B.C. Among them are the coins reading **NIKA** or **ΑΝΙΝ**. I cannot feel persuaded that the coin described below (No. 9) is of such a late date.

9. *Obv.*—Head of Nike, l., hair rolled and waved, wearing stephane bound with wreath of olive; **NIKA** to l., upwards; ribands of wreath off flan.

Rev.—Ear of barley on stalk with leaf r.; **META** to l. upwards.

R ♂ 20.5 mm. Wt. 102.3 grs. (6.63 grms.).

[Pl. VII. 6.]

10. *Obv.*—Head of Leukippos, r., in Corinthian helmet with flap: behind neck, **ΑΝΙ**; linear circle. (Turned round on Plate to show earlier type.)

Rev.—Ear of barley on stalk with leaf l.; **META** to r., upwards; above leaf, forepart of Pegasos, r.; below to r., **ΑΡΗ**.

At ↑ 22 mm. Wt. 117.4 grs. (7.6 grms.).

[Pl. VII. 7.]

The interest of these two coins lies in the fact that the Leukippos head has been restruck over a head of which the visible part is so absolutely identical with the Nike head of the previous coin that it may have come from the same die, although the only part visible is the profile from the lower half of the nose to the neck. Unfortunately this is not enough to give us the first letter of the inscription, which would have been conclusive. The coins inscribed **NIKA** are all described as late by Head, who places them after the Leukippos group in the period c. 330-300 B.C. (*Hist. Num.*², p. 79). If it could be proved that the Leukippos stater is restruck over the Nike type the latter would have to be removed to the period before c. 350 B.C., a date with which the McClean coin would, in my opinion, better agree on grounds of style.

11. For an unpublished bronze variety and a rare stater see below, Note 1.

CROTON.

12. In *Num. Chron.*, 1915, p. 179 seq., it was suggested that the majority of the staters assigned to the years c. 330-299 B.C. really belong to a reopening of the mint after 280 B.C. The solitary exception is the coin with the corn-ear and serpent symbols on the reverse. "Whether it belongs to the years 330-299 B.C. is, for

our purpose, immaterial" (*op. cit.*, p. 185). It was further suggested that this coin really dates from c. 400 B.C.

I now find that another specimen, acquired by the Cabinet des Médailles, was described by M. Jean de Foville in *Rev. Num.*, 1908, p. 8. Regarding the date c. 330-299 B.C. as correct, he saw in the ear of corn evidence of an alliance with Metapontum; at the same time he mentions a coin of Metapontum with a tripod, or a serpent, for symbol. His actual reference for the tripod is Garrucci, Pl. civ, No. 21, a bronze coin with the head of Apollo for obverse type, which at once suggests an alternative explanation for the tripod in this case.¹ The tripod occurs, however, on other coins of Metapontum, *e.g.* the fine stater with the veiled head of Demeter (*B. M. Cat.* 155) and the small silver coin

¹ It is probable that a large proportion of the bronze coins of Metapontum belong to the third century B.C. There are, for instance, the coins bearing the name of the magistrate **ΤΙΜΩΝ** in full (Garrucci, Pl. cv. 27) of which the shortened form **TIM** occurs on a McClean coin between two ears of barley. Another McClean coin gives not only the name in full to the l., but also a tripod to the r.; between is the type, an ear of barley, and **META**. The obverse type is the head of Apollo, l., laureate, so that the coin is a variant of the one mentioned in the text. Unfortunately, although all details of the letters, &c., are quite clear, the coin is in too poor a condition to be worth reproducing here. The style of the piece is late, and the name does not occur in its abbreviated form on the silver coins of Metapontum, so far as I can find. No other name in full is known at Metapontum except **ΘΑΡΡΑΓΟΡΑΣ** (an epithet of Ares?) on the silver staters c. 340 B.C., published by Imhoof-Blumer, *Monnaies grecques*, p. 5, 21-4. (Is it certain that the head on the obverse of that coin with the long hair escaping in curls below the helmet flap is Ares, as Imhoof says, and not Athene as others have described? The McClean specimen does not read the name, but has **ΑΘΑ**, and an *owl* on the reverse and **ΞΑ** behind the head of the obverse. Pl. VII 8.)

with the head of Ammon (*B. M. Cat.* 121). I find it difficult to believe that, amid the multiplicity of symbols on the later coins of Metapontum, the tripod has a special reference to Croton. As for the use of the ear of barley on coins of Croton, this occurs on *fifth-century* coins with *koppa* used in the inscription ϕPO (*B. M. Cat.* 73), and the corn grain is a common Croton symbol. I am therefore not persuaded that the combination of the symbols can be made to refer to an alliance between these towns in the late fourth century B.C. (See also Sambon, *Rev. Num.*, 1915, p. 92, No. 6, for a stater in the Jameson Collection.) I still regard the suggestion that this coin must be ascribed to c. 400 B.C., and that the coinage c. 330-299 B.C. must be supplied by a later dating of the Apollo head coin as most probable. (1) The coin will remain as a solitary example of the old eagle type for that particular period. (2) M. de Foville's specimen weighs 7.64 grms. (118 grs.), and thus bears witness to the very good weight maintained by the specimens previously recorded (*op. cit.*, p. 185). On the other hand, it was shown that the Apollo series has a marked tendency to decrease in weight. (3) The style still seems to me to be that of the later fifth-century coins; it is true that the tripod with the *holmos* is of unusual shape, and can, indeed, only be paralleled by the similar coins of reduced weight. The shape of the lebes, however, varies a good deal on the fifth-century coins. The fact that the type occurs again in 280 B.C. is in favour of the later date for the original from which it is derived. To my mind, this is quite outweighed by the other considerations brought forward above.

13. Three examples of light staters omitted in the

previous list are to be found in Sambon, *Recherches*, &c., 1870, p. 326, Nos. 48-50. They are of the types given under Nos. 3, 8, and 7. The weights are 6.77, 6.6, and 6.57 grammes respectively. An example of type 4 occurred in the Headlam Sale (Sotheby, May 9, 1916, Lot 229) and has been acquired by the British Museum. Weight, 6.15 grammes.

LAUS AND SYBARIS.

14. On p. 190 of the same article it was suggested that the types on certain coins of Sybaris (a dove) and Laus (a crow) might be intended for the same bird. It is interesting to note that a similar difficulty (dove or eagle?) has been found in some coins of Aphytis (Wroth, *Num. Chron.*, 1902, p. 315). Finally, I have to thank Mr. Hill for calling my attention to the fact that a coin ascribed to Laus and Sybaris (*op. cit.*, p. 189) has already been published in the Jameson Catalogue, No. 258. The types of this piece differ from those of the McClean coin, which now seems to me probably the one sold in the Nervegna-Martinetti Sale, No. 504, as a coin of Poseidonia, Laus, and Sybaris, the inscription on the obverse being there read as $\text{O}\Gamma$ and $\Sigma\Lambda\Lambda$.

LOCRI.

15. *Obv.*— $\Lambda\text{OKP}\Omega\text{N}$ around to l., inwards. Head of Zeus, l., laureate; hair in long curls; behind neck, a poppy-head.

Rev.—Eagle, l., standing with closed wings within olive wreath with berries (Die of Hartwig Sale, No. 490).

$\bar{A}R \rightsquigarrow$ 23 mm. Wt. 118.1 grs. (7.65 grms.).

[Pl. VII. 10.]

Restruck over a stater of Corinthian types.

Staters with this reverse type are very rare, and are not mentioned in the *Historia Numorum*. Another example is figured in Garrucci, Pl. cxii. 24. The Pegasos stater over which the M^cClean specimen is restruck was no doubt of Locrian issue. It is curious that this particular specimen should have been of such low weight as to coincide with the local standard employed for coins of native Locrian types. The normal staters of the Pegasos class weigh 135-130 grains, but occasional specimens drop to c. 119 grains, though they are unusual. The coin probably dates from about 325 B.C., as the style of the obverse is better than that of the latest Locrian staters with their careless execution.

RHEGIUM.

The following restruck bronze coins are of interest.

16. *Obv.*—Head of Apollo, r., laureate; behind neck, palm-branch; border of dots.

Rev.—**PHΓINΩN** above and in ex. Wolf, r., preparing to spring; to r., III; plain ex. line; linear circle.

Æ ↓ 23.5 mm. Wt. 111.8 grs. (7.24 grms.).
[Pl. VII. 11.]

Restruck over a coin of the Bruttii, *obv.* head of Zeus, r., with thunderbolt to l.: *rev.* **BPETTIΩN** to l.; naked warrior, r., armed with helmet, long spear, and oval shield; below the shield, a race torch. Part of the head of Zeus, the race torch, and the long oval shield are visible under the new types.

17. *Another specimen.* Æ ↘ 23.5 mm. Wt. 110.5 grs. (7.16 grms.). [Pl. VII. 12.]

Restruck over a different coin of the Bruttii, *obv.* head of Zeus, r., with caduceus to l.: *rev.* eagle with

spread wings, l.; head turned back. Part of the head of Zeus, the caduceus, and the upper part of the eagle visible under the new types.

The only other specimen of these triantes in the McClean Collection also seems to be restruck, but I am unable to give the old types. There is no specimen of the wolf type in the B. M. Catalogue, Hunter, Leake, Ward, and Warren Collections. The restruck coins were no doubt issued soon after 204 B.C., when the coinage of the Bruttii came to an end. In that case a useful date for fixing the bronze coinage of Rhegium has been gained.

18. *Obv.*—Head of Asklepios, r., laureate; border of dots.

Rev.—**PHΓINΩN** to r. downwards. Hygieia, l., feeding serpent; to l., III; linear circle.

Æ ~ 26.5 mm. Wt. 100.4 grs. (6.5 grms.).

[Pl. VII. 13.]

Restruck over an earlier coin of Rhegium. Visible, on the obverse, part of a lyre, the old reverse type; on the reverse, around below, profile of head of Artemis, the old obverse type.

One of two triantes of these types in the Hunter Collection (No. 60) is restruck on a piece considered to be the earlier coin with the head of Apollo and a tripod lebes for types. While this piece and the two in Glasgow weigh over 100 grs., it may be noticed that B. M. 113-15 and two specimens in the McClean Collection weigh from 51 to 34 grs. only. Presumably the types were employed just before the lowering of the standard. On the coin described above the letters **ΩN** to the r., outwards, occur, but do not seem to form part of a complete inscription [**PHΓI**]ΩN.

TERINA.

19. *Obv.*—Female head, r., wearing necklace of beads; hair waved and rolled over ampyx with floral design; Φ behind neck; olive wreath border.

Rev.—TEPINAIO[N] around to l. Winged Nike, seated l. on stool, playing with ball.

R \rightarrow 21.5 mm. Wt. 117.1 grs. (7.59 grms.).

[Pl. VII. 14.]

A stater of Regling's type, No. 33, but interesting from the fact that it is restruck over a didrachm of Neapolis, the letters -- $\text{O}\Gamma\text{O}\Lambda$ --- being legible on the reverse, with slighter traces of the E. Another point of connexion between Terina and Neapolis lies in the well known but exceedingly rare obol of the latter town with the inscribed head of the river-god $\Sigma\text{Ε}\text{Ρ}\text{Ε}\text{Ι}\text{Θ}\text{Ο}\varsigma$ for obverse type, and the Terinaean type of a Nike seated on a hydria for the reverse. [Pl. VII. 9.]

CATANA.

20. *Obv.*—Quadriga of horses prancing r., the forelegs off the ground; driven by male charioteer holding reins and goad in hands; above, Nike flying r. to crown horses; plain exergual line; in ex., shrimp; border of dots.

Rev.—Head of Apollo, r., laureate, the hair waved over the crown of the head and turned up behind below wreath; some loose strands in front of ear but no loose ends over head; the leaves of the wreath arranged in groups of three and the end of the cord tucked in behind; to l., part of a fish swimming upwards, the rest off the flan; traces of KATANAION around from r., inwards. [Pl. VIII. 1.]

This tetradrachm has excited little comment, presumably on account of its great rarity. The only other specimens known to me are those in the Benson

Sale, No. 208 (thought to be unique) = Hirsch *Cat.* viii, No. 889; Hirsch *Cat.* xix, No. 121, and xxxi, No. 148. The reading with O is established by the Benson specimen. The high action of the horses with only the forelegs off the ground is rare at Catana, but is found on another tetradrachm with a similar reverse type. An example is to be found in Hirsch *Cat.* xxxi, No. 147, where the reverse with a leaf behind the head of Apollo is probably from the same die as B. M. Catalogue, No. 25. Also Benson Sale, No. 209. But B. M. 25 and 26 show an obverse with horses of the ordinary walking type. We therefore arrive at the latest years before the period when **KATANAIΩN** becomes regular and the fast-galloping quadriga is introduced—c. 413–404 B.C.—as the most probable date for our coin. But we may notice that the obverse is practically identical in composition with that found on Sicilian tetradrachms dated as early as 466 B.C. by Head and others (*Num. Chron.*, 1874, p. 11, Pl. ii. 12; Benson Sale, No. 308), and probably never yet placed later than c. 450–440 B.C. The style is perhaps a little more severe than on the coin under discussion, and the chariot is moving l. instead of r. When, however, the Apollo head on the reverse of our coin is considered, it becomes apparent that if any account is to be taken of normal artistic development in the fifth century B.C. the coin cannot be dated earlier than c. 413 B.C., and that by comparison the Apollo head of B. M. 25 and Hirsch *Cat.* xxxi, No. 147, quoted above, is almost archaic.²

² See also a coin with a finer but similar head of this type published by Evans, *Num. Chron.*, 1896, p. 130, who dates it about 423 B.C. On p. 131 he dates the coin of Euainetos to the time of the Sicilian expedition. See also his article in *Num. Chron.*, 1891,

For artistic beauty and freedom in execution the only coins of Catana which can be brought into comparison are the rare tetradrachms of Euainetos (B. M. 35, &c.) and the more youthful head seen on the well known and commoner coin (B. M. 30), which some now wish to connect with the artist Herakleidas. But for beauty combined with severity of artistic restraint it does not seem to me that the equal of this coin can be found, not even in the Apollo heads of the coins of the Chalcidic League, where the artist was probably well acquainted with types of Catana. The effect here is gained (1) by the delicate treatment of each strand of hair and the avoidance of loose ends which distract the eye; (2) the successful treatment of the laurel wreath: the small leaves seem more in proportion to the scale of the whole than is often the case, and the pretty intertwining of the stems behind, with the slight twist, relieves the wreath from stiffness; (3) above all, the effect is obtained in a comparatively low relief. Here the artist is following an older tradition of the mint when under the influence of Leontini, and the treatment of the hair is that of earlier coins of that town. For a fine earlier coin of Catana in similar low relief see **Pl. VIII. 2**. Comparing small with great we may remember how the low height of the Parthenon frieze reliefs contributes to the fine effect, though no doubt there the practical result of avoiding deep shadows was the first consideration. Dare we suggest a closer connexion with Greece proper? It is fairly certain that the great Sicilian die-sinkers travelled in Greece,

p. 292. This second date must be too early for the coin in question, which few would now deny is later than 412 B.C.; there is then no difficulty in bringing the first coin down to c. 415 B.C. The symbol behind Apollo's head is here the usual laurel leaf.

and studied the work of the art schools there.³ And it will be admitted that our coin in style stands apart from all others, *sui generis*. Apart from the treatment of the hair, it seems to me that the facial forms and the nobility of expression resemble to a really marked degree two of our most beautiful antique remains, the marble head of Athene in Bologna and the bronze head of a youth found at Beneventum and now in the Louvre.⁴ We have seen that a date just before c. 413 B.C. best suits our coin so far as our present evidence goes. It is possible, though incapable of the slightest proof, that it is the work of an artist who had studied the masterpieces of the chief Greek schools, whether of Athens or the Peloponnesus, and that he produced it when the Athenians encamped at Catana before the investment of Syracuse. It is true that a small party with Syracusan sympathies prevented the first attempt of the Athenians to make a base there, and that the actual settlement was the result, in the first instance, of a *coup d'état*. The majority of the inhabitants, however, do not seem to have been offended by this display of force, and the narrative of Thucydides (vi. 51) is not quite fairly treated by Holm when he says: "Catana was surprised; not even this Chalcidian city joined Athens of her own accord" (English ed., vol. ii, p. 471). Such political considerations would not, in any case, affect an artist.

³ Furtwängler, *Meisterwerke*, p. 104 (English ed.), "Pheidonian influences in Sicily and Magna Græcia."

⁴ The Bologna head is, in my opinion, derived from the work of an Argive master. Those who will compare the illustration on Pl. VIII with casts or profile illustrations of the two heads must, I think, be struck by the resemblance. For the Louvre head see Brunn-Bruckmann, *Denkmäler*, No. 354, or *Meisterwerke*, Pl. xiv.

Nor is the question affected by the fact that the coin recalls, to my eye at least, works of the Argive school. Attic art had learnt much from Argos twenty or thirty years earlier than this.⁵

Here we may recur once more to the coins already mentioned above from Hirsch *Cat.* xxxi, No. 147, B. M. 25, and Benson Sale, No. 209. This last coin came from the Warren Collection, and is No. 214 in Regling's Catalogue. Other examples, with the prancing horses on the obverse, and the leaf behind Apollo's head, are to be found in Hirsch *Cat.* xix, No. 120; Sale Catalogue, Paris, December 19, 1907, No. 119. Finally, No. 213 in the Warren Collection reads **KATANAIOΣ**, the type and symbol being the same. Only the reverse is shown on the plate, but the coin is undoubtedly identical with Bunbury Sale (1), 1896, No. 285, where we find that the obverse is of the old walking type. The coin is thus similar in all points to B. M. 25, which has the same reading, and which was seen at the beginning of this note to afford valuable corroborative evidence that the group, as a whole, is not dated too early when assigned to the years c. 420-413 B.C. But the question which demands settlement concerns the leaf behind the neck of Apollo. The laurel leaf is often found on coins of Catana, but what is this new-comer? The British Museum Catalogue gives "poplar-leaf?", the Paris Catalogue *feuille d'ache* (water parsley), the Benson and Bunbury Catalogues wild celery and parsley-leaf respectively, and the rest vine-leaf. There can be little doubt that the second interpretation is correct.

⁵ My only point is that our artist had a more than insular experience.

Various attempts have been made to show that the occurrence of the same symbol on the coins of different Sicilian towns is no mere accident, but significant of a treaty or alliance between the towns. If there is anything in this method of interpretation, these coins of Catana should be in the nature of a test case. The wild celery or *selinon* leaf can only refer in some way to Selinus, of which town the *selinon* leaf is the "canting" badge, appearing as the type on the oldest coins, and later on as an invariable symbol in the field. The ostensible motive for the Athenian expedition to Sicily in 415 B.C. was to aid Segesta against her ancient enemy Selinus. Ranged in the camp of Segesta was Leontini, an old ally of Catana. The Athenians remained at Catana for a considerable period. They formed their camp in the spring, stayed over the summer, and after marching away in the winter to fight a victorious battle near Syracuse returned to winter at Catana and Naxos, and it was from Catana that the attack on Epipolæ was launched in the following year. In the winter battle the strongest contingent of allies to help the Syracusans had been sent from Selinus (Thucydides vi. 68). There is evidence to show that some of the so-called "alliance coins" should be interpreted in a very different sense (*Num. Chron.*, 1915, p. 191) as symbols of victory. Are we, then, justified in connecting the *selinon* leaf on the coins of Catana with the victory of the Athenians and their allies in the winter of 415 B.C. over Syracuse and her ally Selinus?⁶ The coins would in that case

⁶ I would not apply the "symbol of victory" theory as a general rule; but the "alliance" interpretation seems to me to be decidedly improbable. See above, CnORON. A particular symbol on a coin

have been struck in the year 414 B.C. It would be interesting to know whether the symbol occurs on any other Sicilian coins save those of Selinus and Catana.

Should the identification of the symbol as a *selinon* leaf be rejected⁷ and that of a vine-leaf preferred, it must still be admitted that the symbol is unusual for Catana; and those who look for meanings in these symbols must seek for some connexion between Catana and, let us say, Naxos.⁸ It cannot be admitted that the two dolphins, opposed, on coins of Messina and Syracuse, the olive branch on coins of Gela and Syracuse, or the pistrix on coins of these same towns, have a more recondite meaning than this leaf, which I believe to be the same as that shown on coins of Selinus.

Our fixed point is that on grounds of style and epigraphy these coins must be dated not later than c. 413 B.C. On grounds of style alone they can hardly be much earlier. The rest is conjecture arising from the facts that in one group we have an Apollo head of a style and beauty removed from the great majority even of Sicilian coins, and in the other an accessory symbol not occurring on other coins of Catana.

may have some reference to the city's history. But two towns in alliance put both names or both types on the alliance coin.

⁷ While it is true that slight differences can be found on comparing the Catana coins with a long series of Selinus tetradrachms, it is equally true that even greater differences can be found in the drawing of vine-leaves even on coins of the same town. It was quite surprising to find how the shape of the vine-leaves on coins of Naxos in the McClean Collection varies. On the other hand, the Catana artist would be less familiar with the *selinon* leaf than his rival at Selinus, and a slight difference in shape is easily understood. Indeed, the differences between *selinon* leaves on coins of the latter town are not inconsiderable.

⁸ Compare Evans, *Num. Chron.*, 1896, p. 129, for a coin of Leontini with a vine-spray symbol.

ENTELLA.

21. *Obv.*—Free horse, cantering r.; below, grain of corn.

Rev.—KA ΜΠΑΝΩΝ around from l. below, inwards.

Helmet with cheek pieces, l.; border of dots.

At Drachm ↓ 19.5 mm. Wt. 59.6 grs. (3.86 grms.).

[Pl. VII. 15.]

(Restruck over a drachm of Catana, *obv.* profile of river-god, l., fish and crayfish around; *rev.* wheel, feet of all horses, &c., visible.)

Another specimen similarly restruck: R ↑ 19.5 mm. Wt. 60.7 grs. (3.93 grms.).

Silver litrae and hemilitra were struck at Entella before Campanian mercenaries of the Carthaginians seized the town in 404 B.C. and held it. No coins are at present ascribed to the mint between 404–340 B.C., when an inscribed hemidrachm with the above types is noted, as well as various bronze coins (Head, *Historia Numorum*², p. 137). The silver coin is exceedingly rare, and a specimen is fully described by Imhoof-Blumer in *Monnaies grecques*, p. 17, No. 15, and in *Z.f.N.* v, p. 144, No. 3. This hemidrachm is restruck over the Rhegian hemidrachm of c. 415–387 B.C. with the lion's scalp and PH between laurel leaves. Imhoof, in the second work quoted above, refers to two similar pieces published by Romano in *Annali dell' Istituto*, 1864, "Nacina ed i Campani in Sicilia," p. 59, Pl. c. 3 and 4. One of these is restruck over the hemidrachm of Naxos reading ΑΞΙΝΟΣ (date c. 413–404 B.C.), and the other over types which Imhoof wished to recognize as those of the Catana drachm mentioned above. Romano, however, gave no weights, and Imhoof, thinking that both pieces should be hemidrachms, suggested that the original coin might be the Syracusan hemidrachm of c. 400 B.C. with a female head, l.,

on the obverse and the chariot for reverse type. It is most probable that his first conjecture was correct, and that the original coin was a drachm of Catana like those now described. Now it will be remembered that the Catana drachms over which the M^cClean coins are restruck are ascribed to the period c. 413-404 B.C., when Dionysius sacked the town. It does not seem hazardous to conjecture that the Campanians, moving from place to place, brought the coins of various towns to Entella in 404 B.C., and restruck them there with their own types much earlier in the fourth century than has been supposed, if not in the closing years of the fifth century B.C.

One reason why the later coins of Entella have been dated to c. 340 B.C. is that the type of the free horse most naturally connected itself with its occurrence at other towns which adopted the type after the advent of Timoleon. Timoleon took Entella in 342 B.C. Why the Campanians should adopt his badge and yet retain their name on the coins is a dilemma which has been noticed by Hill (*Coins of Ancient Sicily*, p. 183): "As almost all the coins bear the name of the Campanians, we may assume that Timoleon in restoring freedom to the people did not find it necessary to annihilate the Campanian mercenaries." But when it appears that the five known silver coins are restruck over pieces dating from the ending of the fifth century B.C., it seems more likely that the type was chosen by the Campanians on settling in Entella in 404 B.C. In two cases the horse is accompanied by a corn grain. This combination is found on Siculo-Punic tetradrachms, and may have been borrowed by the Campanians from their former masters.

HIMERA.

22. *Obv.*—Cock, r.; above, two pellets; border of dots.

Rev.—Female head, r., of severe style; hair tied behind; surface worn; possible traces of letters; border of dots.

R ← 10.5 mm. Wt. 11.4 grs. (0.74 grms.).

[Pl. VIII. 3.]

To judge from the style this small coin belongs to the first quarter of the fifth century B.C. The reverse type is new, but there can be no reasonable doubt that the piece should be assigned to Himera.

LEONTINI.

23. *Obv.*—Quadriga of prancing horses, r., driven by charioteer wearing long chiton; above, Nike flying r. to crown horses; plain ex. line; border of dots.

Rev.—Head of lion, r., jaws open; around, four barley-corns; a few letters of the inscr. **ΛΕΟΝ-ΤΙΝΟΝ** visible; **ΞΥΡΑ** in oblong countermark to l., outwards.

R ← 26 mm. Wt. 244.2 grs. (15.83 grms.).

[Pl. VII. 16.]

An ordinary tetradrachm of the period closing in 466 B.C., but with a very interesting countermark. The retrograde **Ξ** and the tail to the **Υ** may be explained as slips on the part of the workman. The countermark has a late appearance, and, as **P** is used in place of the tailed form **R**, it can scarcely be connected with the domination exercised by Syracuse over Leontini in the reigns of Gelon and Hieron I, when Syracusan types and symbols were copied at Leontini (Head, *Hist. Num.*², p. 173; Hill, *Ancient Sicily*, Pl. v. 5). Another possible date is 422 B.C., when Leontini again became dependent on Syracuse.

It is probable that the countermark is later than this, and the date which most readily suggests itself is c. 357 B.C., when the city supported Dion's expedition to Syracuse and "Pegasi" staters were struck by both towns (Evans, *Num. Chron.*, 1891, p. 362). The later period of Timoleon (c. 340 B.C.) and the earlier occurrence of the transplanting of the Leontines to Syracuse by Dionysius in 404 B.C. seem less likely dates, but so chequered was the history of Leontini that it seems impossible to hope for reasonable certainty on this point.

MESSANA.

24. *Obv.*—Biga of mules, r., driven by charioteer; above, Nike flying r. to crown mules; in ex., laurel leaf; border of dots.

Rev.—**ΜΕΞΞΑ Ν ΙΟΝ** around from l. below; hare running r.; above, Γ.

At \searrow 28 mm. Wt. 263.1 grs. (17.05 grms.).
[Pl. VII. 17.]

The McClean Collection contains other pieces with the letters A and D (above and also below the hare), while B, C, and E are also known. Γ occurs on a specimen from a different die in Hirsch *Catalogue* xix, No. 195 = xxxiv, No. 161. Hill's proposal⁹ to regard the letters as numerals, dating the years from some time shortly before 475 B.C., would give a date about 460 B.C. for our coin, and it is to be hoped that coins bearing some of the intervening letters will come to light.

25. Two coins of Messana already published in this journal by Sir Arthur Evans¹⁰ are now in the McClean

⁹ *Num. Chron.*, 1914, p. 101.

¹⁰ *Num. Chron.*, 1890, p. 299, and 1896, Pl. viii. 4.

Collection. One of them has for symbol on the reverse the head of the nymph Pelorias, and is further distinguished by the obverse type which shows the biga of mules galloping. This is, I believe, the only exception at Messana to the ordinary walking type with its variant, where a high-stepping action is shown (Hill, *Sicily*, Pl. viii. 14). The name of the nymph Pelorias is legible on another specimen in Paris; but below the neck of this small head Evans detected traces which he took to be the remains of the signature [KIM]ΩN. The coin has been reproduced in Forrer, *Notes sur les Signatures*, &c., p. 219. It has not, however, been noticed that the piece is a restruck coin, and it appears to me that the supposed traces of letters are no more than parts of the dotted border. The name of Kimon, then, must not be connected with this quite exceptional coin unless better evidence is forthcoming. It occurs on other coins of Messana with the ordinary walking biga and the symbol of the eagle devouring a serpent. Another small point to add to the description given by Evans is that between the nymph's head and the body of the hare is a small letter or symbol Ζ (? Ν outwards).

It is difficult to place this coin in the Messana series. From the obverse type it would seem to date from just before 396 B.C., when the city was destroyed. Evans, however, has read the inscriptions on the reverse as ΜΕΣΣΑΝΙΩΝ ΠΕΛΩΡΙΑΣ, the epigraphical forms thus pointing to a distinctly earlier date. These legends are presumably supplied by Evans from the French specimen, as it is impossible to distinguish any vital letter on our coin (Ν, Ο or Ω). Yet the style of the small head and the ear of corn in the exergue of the

obverse favour the earlier date, as they find their best parallel on the *earlier* of the Syracusan tetradrachms of Tudeer's period c. 413-399 B.C.

26. The second coin is the alliance tetradrachm of Messana-Locri, which bears the ordinary types of Messana, but reads ΛΟ above the hare. This coin is notable because it cannot be dated later than c. 450 B.C. although the coinage of Locri does not start for another century. My only reason for again mentioning this coin is to draw attention to a still more remarkable tetradrachm which has escaped attention. This is figured in the Chevalier dell' Erba Sale Catalogue, Paris, May 14, 1900, No. 139. It bears the types of Messana, but reads ΛΟ *on both sides without further inscription*, and has as symbols an eagle's head in the exergue, of the obverse and an amphora (? Hipponium) on the reverse.

MORGANTINA.

27. *Obv.*—Helmed head of Athena, r.

Rev.—Tripod.


(Restruck over coin of Morgantina, *obv.* head of Athena in richly adorned helmet with plume, the whole profile visible above the helmet of the later striking; *rev.* lion r., devouring prey, partly visible below tripod.)

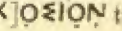
Æ ♂ 27 mm. Wt. 224.8 grs. (14.57 grms.).

[Pl. VIII. 4.]

The head of Athena and tripod do not seem to occur together on any Sicilian coin. Both occur on separate coins at Morgantina, so that the piece was probably restruck at its original mint. Before recognizing the original as a coin of Morgantina I had been inclined to attribute the new striking to Tauromenium.



PANORMUS.

28. *Obv.*—Biga of mules walking r. with Nike flying r. to crown them;  (*εἰς*) between Nike and reins; in ex., corn grain; plain ex. line.

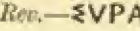
Rev.—Female head, r., wearing button ear-ring; hair waved and gathered up behind; around, four dolphins; around  the extant letters above.

R \nearrow 25 mm. Wt. 262.5 grs. (17.01 grms.).

[Pl. VIII. 5.]

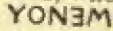
As the coin does not seem to be restruck it would appear that a Syracusan die had here found its way to the mint of Panormus. On this subject see Tudeer, *Die Tetradrachmenprägung von Syrakus*; pp. 102-4, where a similar coin in Paris is cited. As the letters are badly struck, O appearing as  or  in the two cases, and only a part of N being visible, there is the possibility that this die was also cut at Panormus, and that the letters are not so much badly struck as blundered by an artist unfamiliar with the Greek alphabet. In this connexion another coin in the McClean Collection may be given here, though whether it should be attributed to Panormus or Syracuse remains uncertain.

29. *Obv.*—Quadriga of horses walking r., the l. forelegs off the ground; above, Nike flying r. to crown horses; in ex., plough, r.; border of dots.

Rev.— around above. Female head, r.; around, four dolphins.

R \uparrow 27 mm. Wt. 257.6 grs. (16.7 grms.).

[Pl. VIII. 6.]

Dies, obverse and reverse, of Hirsch *Catalogue* xiv, No. 202 = viii, No. 984; obverse die of Hirsch *Catalogue* xix, No. 252, where it is combined with a reverse reading . There is another specimen of the last coin in Hirsch *Catalogue* xxxii, No. 298.

The coin reading **YONEMYE** has already been discussed in *Num. Chron.*, 1908, p. 8, by the Rev. A. C. Headlam, who remarked that some of the later transitional coins were the work of artists to whom we owe the signed tetradrachms.¹¹ This piece would presumably be dated to c. 440 B.C. But in his *Tetradrachmenprägung von Syrakus* a coin from Hirsch Catalogue xix, No. 215, was brought forward by Dr. Tudeer, who maintained that this coin was from the same obverse die although the reverse reads **NOXITIMQONAP**. While admitting the possibility that the obverse die was obtained from Syracuse by the mint at Panormus before this last coin was struck, he concludes that the other coins are merely copies of Syracusan coins, and that none of them were minted at Syracuse. It may be noticed that the plough in the exergue of the obverse is not mentioned in all the descriptions of the coins given above. This is probably due to the fact that on most specimens it is very faint and it can hardly be used to throw doubt on the identity of the die without further examination of each coin.

SYRACUSE.

30. *Obv.*—Quadriga of horses walking r.; above, Nike flying r. to crown them; ex. off flan.

Rev.—Female head, r., the hair bound with a cord twisted four times round; wearing ~ shape ear-ring and plain necklace; around, four dolphins, only two of them visible; **A** on neck behind; **YNI3[OKA9Y3]** the extant letters above.

R ← 25.5 mm. Wt. 260 grs. (16.85 grms.).

[Pl. VIII. 7.]

From a Paris Sale, February 24, 1909, No. 26.

¹¹ See also Lederer, *Num. Zeit.*, 1910, p. 1.

The importance of this coin is sufficiently obvious. The reverse type belongs to the later years of the period preceding the signed tetradrachms. The occurrence here of Ω in a retrograde inscription with the archaic Ψ will demand attention from those engaged in fixing the chronology of the Syracusan series.

Tetradrachms of the type described above are not generally regarded as the very latest products of the transitional period, although from *Historia Numorum*², p. 174, it may be gathered that Dr. Head had come to consider them as such, and would have approved of a date c. 440–430 B.C. Battle is still joined over the date of the earliest signed coins. Evans has placed them c. 440 B.C.,¹² Holm about ten years later,¹³ and Headlam c. 420 B.C.¹⁴ The most recent authority is Dr. Tudeer, who adopts a date c. 425 B.C.¹⁵ In the early years of this period the artist Sosion signs his name with Ω ,¹⁶ but it is only towards 413 B.C. (taking Tudeer's dates) that Ω becomes common, as it then appears regularly in $\Sigma\Upsilon\text{PAKO}\Sigma\text{ION}$. Unless we suppose that its occurrence on our coin is purely accidental, we must date the tetradrachm with the earliest coins signed by $\Sigma\Omega\Sigma\text{ION}$, whatever *floruit* we accept for that artist, and still regard the appearance of Ω in the ethnic as remarkable.

Now in the important series of catalogues issued by Dr. Hirsch the signed tetradrachms are dated from c. 412 B.C., and this is, in fact, the chronology adopted

¹² *Num. Chron.*, 1891, p. 352.

¹³ *Gesch. Siciliens*, iii, p. 615.

¹⁴ *Num. Chron.*, 1908, p. 5.

¹⁵ *Tetradrachmenprägung von Syrakus*, p. 4.

¹⁶ As Evans had already pointed out and had accepted Ω and H for c. 440 B.C.

by Du Chastel in his well-known work. While not offering any defence for this late date, it seems to me that its acceptance is based on a well-founded instinct, the desire, I mean, to date the unsigned coins as late as possible, and spread out the various types over a longer period than scholars have usually allowed. A partial solution appears to be simple. It seems to be almost universally accepted that a rigid chronological division can be made between the late transitional and the early signed tetradrachms. The conveniences of classification obscure what must have actually happened. When Sosion and Eumenes produced their earliest signed pieces it is most unlikely that the issue of unsigned coins ceased abruptly. If the signed coins began in 440 B.C. it must surely be allowed that the unsigned issues lasted until 435 or 430 B.C., while if we prefer to date the former down to 425 B.C. there is no reason to suppose that our latest unsigned tetradrachms are earlier than 420-415 B.C. However they be dated we must suppose that the coin under discussion is later than some of the coins signed by Sosion. And we must admit the possibility of its being at least as late as the earliest coins bearing an artist's signature, and also reading **ΣΥΡΑΚΟΞΙΩΝ**. According to Tudeer this would bring us to c. 413 B.C. as the actual date of this coin.

I do not know whether the following considerations in support of a later, overlapping date for the "transitional tetradrachms" will be considered so unscientific as to have no value; they will in any case, I think, show that the chronology down to 478 B.C., adopted in the second edition of the *Historia Numorum*, needs rectifying. A broad division of the Syracusan series

to the beginning of the fourth century B.C. is as follows: (1) before 500 B.C.; (2) 500-478 B.C.; (3) 478-440 or 425 B.C.; (4) c. 440 or 425 B.C.-400 or 387 B.C. The last class, which, as we have seen, is variously dated, comprises all the signed tetradrachms, and of these Tudeer has collected just under 700 examples. In addition to all the sale catalogues, he had at his disposal the details of coins in the great Continental museums, particularly those in France, Russia, Belgium, and Germany. In the sale catalogues and our English museums alone I have counted 500 specimens of the tetradrachms ascribed to the period before 478 B.C., and just under 1,000 of those given to the succeeding years. Allowing for the fact that a number of these may be duplicates, but considering the large numbers which the cabinets of foreign museums must contain, it is not unreasonable to assume that these numbers might, on a conservative estimate, be increased to 600 and 1,200 respectively. As there is no evidence either way we must suppose that an equal number of coins were required every year, and that the chances of preservation for the coins of the three periods were equal.

What proportional result would these figures give for the years 500-387 B.C.?

- (1) Early Period, 600 coins, 500-478 B.C.
- (2) Middle Period, 1,200 coins, 478-418 B.C.
- (3) Later Period, 700 coins, 418-386 B.C.

If we took only the 500 and 1,000 coins, and supposed that duplicates among them compensated for all specimens in the European cabinets (which, as explained, are included in the 700 coins under (3)),

we should get this result: (1) 500-474 B.C.; (2) 474-422 B.C.; (3) 422-386 B.C.

It is probable that a certain number of the coins briefly described in catalogues as archaic, and before c. 478 B.C., should be given to the Middle Period.¹⁷ The only effect of this would be to bring the division between these periods nearer to 478 B.C., which has long been regarded, no doubt correctly, as the natural line of division. We are not, of course, justified in assuming that an equal number of coins were needed each year. In point of fact it is obvious that fewer coins would be minted during the first twenty years of the fifth century B.C. than between say 480-460 B.C. This only supports our hypothesis that the early series must be prolonged over a greater period of years. But economic considerations might vitiate arguments drawn from figures when we turn to the other end of the century. We must also remember that when once the mint was started the old coinage remaining in currency would to some extent meet the new demands; here we must think away modern conditions and try to imagine those of the ancient city state.

With regard to the arrangement in *Hist. Num.*², p. 172, the early coins with the small head in the incuse set in the middle of a quartered square are dated before 485 B.C., and the next division is confined to the years 485-478 B.C. On p. 173 it is made quite clear that the coins with a *pistrix* in the exergue of the obverse are the earliest of the period after 478 B.C. Consequently the issue of 485-478 B.C. would have left us its record in 500 or 600 specimens, while only twice

¹⁷ It is unlikely, on the contrary, that any coins ascribed to the later period are really archaic coins of the First Period.

that number occur for the forty or fifty succeeding years, and a mere fraction more for the thirty or forty years of the signed period. Lastly, on p. 171, the earliest coins are regarded as starting at least as early as 500 B.C. It is improbable that more than sixty or seventy of all the early issues exist, if so many, and they are too few to cover the years 500-485 B.C. in view of the large numbers which must then be ascribed to 485-478 B.C.¹³

It would seem that a *nexus* of die combinations for the transitional tetradrachms would be a work of no little value, and might well lead to some unexpected results in a group whose arrangement is considered more or less settled. Compare also the tetradrachm of Syracuse mentioned in discussing the coin of Catana, No. 20 above.

31. Gold piece of One Hundred Litrae.

The M^cClean specimen is from the Montagu Sale, 1894, No. 59. Behind the neck is a letter or monogram which is partly off the flan, and which was not read by the cataloguer. In the ten specimens acquired by the British Museum in 1891 from the Avola find two were thought to read A (X?) (Wroth, *Num. Chron.*, 1892, p. 3). Only KI, EYAI or EYAINETO are recognized in *Hist. Num.*², p. 176. See also A. J. Evans, *Num. Chron.*, 1891, p. 297.

¹³ The proportion of tetradrachms before 478 B.C., and between 478-490 B.C., in some of the more important collections may be found interesting. All are, of course, included in the figures given above. B. M. Catalogue, 40 to 53; Hunter Coll., 7 to 12; M^cClean Coll., 25 to 41; Ward Coll., 8 to 21; Warren Coll., 23 to 38; Leake Coll., 4 to 3; Montagu Sales, 7 to 13; Benson Sale, 11 to 31; Strozzi Sale, 14 to 24; Caprotti Sale, 13 to 40; Hirsch Catalogue, xxxii, 33 to 125.

The McClean coin is from the same obverse die as another of the coins from Avola illustrated in Hirsch *Catalogue* xiv, No. 207. The cataloguer there somewhat boldly claims the coin as a *chef-d'œuvre* of the artist Kimon, although the monogram is intact and can hardly be resolved as other than KA or AK. For other examples from this same find see *Z. f. N.* xvii, p. 171, No. 13, and p. 178, where Löbbecke's suggestion that a new artist's signature is here recorded seems to merit more recognition than it has received. His alternative that A is to be read alone and K interpreted as the first letter of K[IMΩN] seems to me unreasonable, however much we may desire to ascribe all these gold coins to that artist or to Euainetos. Unless the coin bears the signatures of those artists it is decidedly unsafe to say, as is often done, that it is the work of either of them (*e.g.* O'Hagan Sale Catalogue, Nos. 216, 217). Why should not the coins marked K be the work of KA, if he be an artist, rather than of K[IMΩN], although it is true that Kimon also uses K for his signature?

32. *Obv.*—Head of Persephone, r., wearing ear-ring and necklace; the hair wreathed with barley and falling loosely over the neck; KOPΑΣ around to l.; border of dots.

Rev.—ΑΓΑΘΟΚΛΕΙΟΣ around to l., Nike erecting trophy; in the field, Α and triskeles; plain ex. line; linear circle.

AR 27 mm. Wt. 264.3 grs. (17.12 grms.).

[Pl. VIII. 8.]

This tetradrachm of c. 310-304 B.C., or the second period of the coinage of Agathocles, seems worth reproducing here on account of its fine style. At the same time the treatment is a little unusual. In about eighty specimens seen in the original or in illustration

I have not found one which did not show the loose hair blown over both shoulders. On this specimen there is no trace of hair over the left shoulder, and as the type and the border below are intact there is an apparent increase in the length of the neck, when compared with other specimens, which lends an additional charm to the M^cClean coin.

33. *Obv.*—ΔΙΟΣ ΕΛΛΑΝΙΟΥ around to l., inwards. Head of Zeus Hellanios, l., laureate, hair in long curls; border of dots. (Restruck over coin of Agathocles with plain traces to r. of head of Artemis, r., and ΞΩΤΕΙΡΑ.)

Rev.—ΣΥΡΑΚ ΟΞΙΩΝ around to r. and l. Eagle, l., standing with spread wings on thunderbolt; linear circle. (Traces of earlier type to l. of coin when turned upside down are [Α]ΓΑ . . . ΒΑ . . . above and below end of thunderbolt.)

Æ ↓ 25 mm. Wt. 119.3 grs. (7.73 grms.).

[Pl. VIII. 9.]

Restruck coins of this type have lately been considered by Dr. Tudeer, *Sonderabdr. a. d. Sitzungsab. d. Finnisch. Akad. der Wissensch.*, October, 1914, p. 3. An interesting point may, I think, be added to his discussion.

Dr. Tudeer found 71 specimens of this coin mainly in Paris, London, and Glasgow. Of these no less than 19 were restruck. We may add 12 specimens in the M^cClean Collection, two of which are restruck. He remarks that this restriking must be due to design owing to the hatred which Agathocles inspired. As the new types are significant of freedom he ascribes the beginning of this series to the year of democratic rule 289/8 B.C. For special reasons, Hiketas maintained the issue (*op. cit.*, German summary, p. 3).

Here we may notice that Holm's proposal to attribute

the bronze coins usually assigned to Hiketas back to the reign of Agathocles is almost certainly refuted as far as this coin is concerned, since Agathocles would hardly restrike his latest bronze coins—the latest, that is, hitherto attributed to him—especially when the restriking involved the cancelling of his name. Now the coins are far too numerous for all to be assigned to the year 289/8 B.C., and the issue must have gone on in the succeeding period as Dr. Tudeer says. But the other bronze coins attributed to Hiketas are those with the head of Persephone-biga types. This series is usually considered the earlier, probably because two specimens of the Zeus Hellanios-eagle coin in the British Museum are restruck not, as commonly, over the Agathocles, but over the Persephone-biga coin (B. M. 476, 489).¹⁰ We should now be prepared to find great numbers of the Persephone-biga coin restruck over the same Agathocles bronze piece. Of fifty specimens in London, Glasgow, and Cambridge only a single specimen is restruck (B. M. 467).¹⁰ It is unfortunate that the old types cannot be made out, but Mr. Hill, whom I have to thank for casts of the coins, suggests with much doubt that the original was a coin of Rhegium with the lion's scalp, and Mr. H. Chapman

¹⁰ Since writing the above I notice that these two coins are given in a list on p. 20 of the longer article, and that the Persephone coins are mentioned on p. 21. No mention of them is made in the German synopsis on which I had depended, and I can see no reference either in the text or in the list of restruck coins in the Finnish article to B. M. 467, so conclude that the Persephone coins restruck over other types are not dealt with. On the other hand, I should like to acknowledge as fully as possible that Dr. Tudeer has been first in the field on this question, and that I may only be presenting through a more convenient medium results already reached by another, although arrived at independently.

inclined, independently and from a scrutiny of the cast only, to the same view.

It would appear, then, that despite the coins B. M. 476, 489, where the Zeus Hellanios-eagle types are restruck over the Persephone-biga types, the latter coins are, as a series, rather later; but the two series run on concurrently so that the earlier types could be restruck over the later. This result is not unimportant as it shows that the usual view, which would date a whole series later than another which has afforded a few particular specimens for the restriking of the supposed new types, needs correction to this extent, that the two series may be in great part contemporary. So that dies cut for the Zeus Hellanios-eagle coins in 289 B.C. might be used for restriking a coin struck from Persephone-biga dies cut say in 285 B.C. There is, of course, the alternative that these latter coins have been wrongly dated, and belong to the third century B.C. Apart from other objections, the close resemblance of the types to those of the gold coins of Hicetas renders this theory, in my opinion, untenable.

Piece of Twelve Litrae.

34. *Obv.*—Head of Athena, l., in crested Corinthian helmet ; border of dots.

Rev.—ΣΥΡΑΚΟΞΙΩΝ Artemis, l., shooting with bow ; hound leaping forward ; ^{YA}Σ to l. ; linear circle.

[Pl. VIII. 10.]

Piece of Eight Litrae.

35. *Obv.*—Similar type.

Rev.—ΣΥΡΑΚΟΞΙΩΝ above winged thunderbolt, ΣYAΛ below. [Pl. VIII. 11.]

The interest of these pieces lies in the fact that the obverse die of the twelve litrae piece is used elsewhere for a piece of eight litrae and, conversely, the obverse die of the eight litrae coin used for one of twelve litrae.

1. Hirsch *Catalogue* xxi, No. 744; Rome Sale Catalogue, Tandolo and Tavazzi, April 6, 1908, No. 228. In these two specimens of the eight litrae piece the obverse die is that of the twelve litrae piece described above. These two coins are from the same reverse die with the letters ΞA under the thunderbolt. These letters also occur on the sixteen litrae piece (Hill, *Coins of Ancient Sicily*, Fig. 67).
2. Maddalena Sale Catalogue, No. 692, Pl. vi. 8. In this specimen of the twelve litrae piece the obverse die is that used for the eight litrae piece described above. It is interesting to note that the same letters $\begin{matrix} YA \\ \Xi A \end{matrix}$ occur on the reverse of the Maddalena coin.

There can, I think, be little doubt that in each case the die was made for the higher denomination. The border of dots which is partly visible on the McClean twelve litrae piece cannot be seen on the Hirsch and Rome examples cited above. In the case of the McClean eight litrae piece the flan is very little smaller than that of the twelve litrae coin in the Maddalena sale. The extremities, however, of the helmet peak, the crest, and the neck are just crowded off in the smaller denomination. It will be remembered that at Segesta the die of a smaller coin, the didrachm, is sometimes used for the larger tetradrachms. The Syracusan coins form an interesting commentary on the laxity and indifference displayed by those responsible for their striking.

36. *Obv.*—Head of Zeus, l., laureate; Λ below neck; border of dots.

Rev.— $\Sigma\Upsilon\text{PA}\text{K}\text{O}\Sigma\text{I}\Omega$ [N] in ex. Quadriga of horses, r., driven by winged Nike; $\Sigma\Omega$ above connected by ligature; plain ex. line; linear circle.

R \leftarrow 28 mm. Wt. 208.8 grs. (13.53 grms.)

[Pl. VIII. 12.]

A very fine and uncommon specimen of this rare coin. The letters $\Sigma\Omega$ occur on a twelve litrae piece of this period (B. M. No. 651). Another specimen from the same dies as the M^cClean coin is to be found in Hirsch *Cat.* xxi, No. 742.

TAUROMENIUM.

37. Pl. VIII. 13 shows the reverse of the common bronze coin of this town with the head of Apollo for obverse type. It does not seem to have been noticed hitherto that the reverse type is not merely a tripod lebes, but a tripod lebes standing in front of or, more probably, over a netted omphalos. There are seven examples of the coin in the M^cClean Collection, and the omphalos is plain upon them all. Its appearance on the coin illustrated cannot, then, be accidental. In some cases it would appear to be slightly larger than here. We may assume that it is represented on the same scale as the tripod, and in that case it would be of about the same dimensions as the omphalos found at Delphi in 1913, and believed by M. F. Courby to be the original sacred stone.²⁰ This was of poros stone, and was 0.275 m. (10–11 inches) in height and 0.38 m. in diameter. The lyre and omphalos on the bronze coins of Neapolis would also be in scale.

S. W. GROSE.

²⁰ *Comptes rendus de l'Académie des Insér.*, &c., 1914, p. 267.

Postscript.—On several occasions in my notes on the McClean coins I have mentioned suggestions made by Mr. H. Chapman, late second assistant at the Fitzwilliam Museum. Many readers of the *Chronicle*, both at home and abroad, will learn with deep regret that he was killed in action in France on September 10th. Mr. Chapman possessed a wide general numismatic knowledge and had an instinctive faculty for detecting forgeries. He was especially attracted by the Roman series, and all visitors to the Museum will remember the extreme readiness and enthusiasm with which he showed them our treasures. Many numismatic experts at home, on the Continent, and in America, have acknowledged the care with which he answered their queries and the excellence of the casts which he made for them by the tin-foil and plasticine mould process. The casts for the plates which illustrate this article were among the last which he made. Apart from the deep sense of personal loss which is widely felt in Cambridge, the Fitzwilliam Museum has lost a valued helper whom it will be hard to replace.

S. W. G.

VIII.













A HOARD OF BRONZE COINS OF SMYRNA.





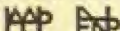

A PARCEL of bronze coins submitted to the British Museum authorities was kindly passed on by them to me after they had made their selection. There were in all 74 coins, which had evidently come from a single hoard, as they were all covered to some degree by the same kind of deposit. This deposit was fortunately not hard to remove, and the coins cleaned well enough to allow of close study in respect of the dies used, which gave some interesting results.

In the list of the coins, the dies are distinguished by capital letters for the obverse and small for the reverse: a separate series of letters is used for each magistrate.

1. *Obv.*—Head of Apollo r. laur.






Rev.—Homer seated l.: i. f. r. ↓ **ΣΜΥΡΝΑΙΩΝ**, l. ↓
magistrate's name (sometimes with monogram).

<i>Name.</i>	<i>Specimens.</i>	<i>Dies.</i>
ΑΡΡΙΔΑΙΟΣ 	11	Aa, Aa, Ab, Bc, Cd, De, Ef, Fg () , Gh, Hj, Jk.
ΑΡΧΙΑΣ 	1	Aa.
ΔΙΟΓΕΝΗΣ ΧΕ ΤΟΥ ΝΥ	14	Aa, Bb () , Cc, Cd, De, Cf () , Fg, Gh () , Gj () , Hk () , Kl () , () , Lm, Mn, No () , () .

<i>Name.</i>	<i>Specimens.</i>	<i>Dies.</i>
ΕΡΜΟΓΕΝΗΣ 	1 Aa.	
ΕΥΔΗΜΟΣ	1 Aa.	
ΘΑΡΣΥΝΩΝ 	1 Aa.	
ΘΕΟΤΙΜΟΣ 	3 Aa, Ab, Bc.	
ΚΑΛΛΙΣΤΡΑΤΟΣ	5 Aa, Aa, Bb, Bb, Cc. ¹	
ΚΡΩΚΙΝΗΣ	6 Aa, Bb, Cc, Dd (Γ in field r.), Ee, Ff.	
ΞΕΝΩΝΔΗΣ 	2 Aa, Bb.	
ΠΑΣΙΚΡΑΤΗΣ 	13 Aa, Bb, Bc, Cd, De, Ef, Fg, Fh, Fj, Gk, Hl, Jm, Kn.	
ΠΟΛΛΙΣ 	5 Aa, Ab, Bc, Bd, Ce.	

2. *Obv.*—Head of Kybele r. turreted.

Rev.—Goddess standing r., holding sceptre, and Nike:
i. f. r. ↓ **ΙΜΥΡΝΑΙΩΝ**, l. ↓ magistrate's name
(usually with monogram).

<i>Name.</i>	<i>Specimens.</i>	<i>Dies.</i>
ΑΠΟΛΛΟΦΑΝΗΣ	1 Aa.	
ΑΠΟΛΛΩΝΙΔΗΣ 	4 Aa, Bb, Cc, Dd.	
ΑΠΟΛΛΩΝΙΟΣ	1 Aa.	
 ΔΗΜΗΤΡΙΟΣ	1 Aa.	
 ΗΓΗΣΙΑΣ	1 Aa.	
 ΠΥΘΕΟΣ	2 Aa, Bb.	
 (?)	1	

¹ The reverses a and c probably had **ΚΑΛΛΙΣΤΡΑ** only.

The following dies were used by more than one magistrate:

B of Arrhidaios = K of Pasikrates.

G and H of Arrhidaios = D and G of Diogenes = D and G of Pasikrates (*v. infra*).

A of Archias = B of Theotimos = C of Pollis (*v. infra*).

D, E, F, G, H, and M of Diogenes = D, E, F, G, H, and C of Pasikrates.

A and B of Theotimos = A and C of Pollis.

B and C of Kallistratos = F and B of Krokinēs.

A of Apollonios = A of Demetrios = A of Hegesias.

There appear accordingly to be amongst the magistrates issuing Homereia three groups in which connexion is shown by common use of dies—Archias, Theotimos, and Pollis: Krokinēs and Kallistratos: and Diogenes, Pasikrates, and Arrhidaios. The coins of the first group are for the most part distinctly worn: those of the second are rather less so: and those of the third are generally in good condition: so that the chronological sequence of the groups is presumably that given above. The one or two examples representing each of the other magistrates in the list have no connecting links: they are all much worn, and may probably be all earlier than any of the groups.

The order in the groups themselves is harder to determine. In the first group, the coins of Theotimos are distinctly from dies in fresher state than the corresponding ones of Pollis: but it would be difficult to say whether Aa of Archias or Bc of Theotimos was struck first. As between Krokinēs and Kallistratos, there is some presumption that the former was in office earlier: the two coins Bb of Kallistratos show a flaw in the die which is not discernible in Ff of Krokinēs: there is, however, nothing to choose in

regard of die-condition between Bb of Krokines and Ce of Kallistratos. The third group is still more puzzling: the dies used by Arrhidaios in common with the other two are rather more worn in the cases of his coins: but in none of the six dies which occur with reverses both of Diogenes and of Pasikrates is it possible to say with any certainty which magistrate used the die first. In fact, the number of dies used in common by these two magistrates (which is more than those shown above: *e.g.* I have a coin of Pasikrates struck from die B of Diogenes) and the similarity of condition in the specimens suggest, as I had previously conjectured from other evidence, that at some times more than one magistrate was authorized to issue coins at Smyrna.

The smaller coins, with the head of Kybele and standing goddess, are on the average much more worn than the Homereia. In the one instance where there is common use of a die, it seems clear that the coin of Apollonios shows the latest state of the die: there is no difference of state between the examples of Demetrios and Hegesias.

It may also be noted that a new die-engraver seems to have been introduced at the mint in the time of the third group noted above. The obverse dies of Archias, Theotimos, Pollis, Krokines, and Kallistratos all show a very similar treatment of the head of Apollo, with the nose almost in a line with the forehead and the lower edge of the line of hair over the temple almost straight: the cross-ties of the wreath are large and square. Dies A of Arrhidaios, B of Arrhidaios = K of Pasikrates, F of Diogenes = F of Pasikrates, N of Diogenes, and A of Pasikrates, seem to be from the

same hand as the foregoing: but the rest of the dies of these three show a fresh treatment of the head: the nose is more prominent and at an angle with the forehead, which looks lower in comparison with the earlier types owing to the hair curving downwards over the temple: and the ties of the wreath are smaller and rounder. It may perhaps be traced to the same change of die-engravers that on some of the reverse-dies of the three last-named magistrates the lettering shows a deterioration in style, being larger and more straggling: also the dies, instead of being exactly adjusted for striking in the position $\uparrow\uparrow$, are commonly about 15° out of plane in the direction $\uparrow\uparrow$.

J. G. MILNE.

IX.

A NOTE ON THE SILVER COINS OF THE JEWS.

ONLY a small number of Jewish silver coins have come down to us. They consist of three denominations: (i) Tetradrachms, (ii) Denarii, and (iii) "Thick" Shekels. I give them in this order, because the date of (iii) is uncertain, while that of (i) and (ii) is fixed.

(i) The Tetradrachms are of poor silver, as is evident from their specific gravity. Coins made of pure silver¹ would have a specific gravity of 10.47: coins of pure copper would have a specific gravity of 8.79: while coins composed of half (by weight) silver and half copper would have a specific gravity of 9.56.² The specific gravity of the Tetradrachms may be judged from the following examples:

British Museum Catalogue (Coins of Palestine).

	Wt. in grms.	Sp. g.
p. 284, No. 1 (slightly yellowish green)	13.06	8.98
No. 2 (traces of green, but clean otherwise)	14.05	9.54
No. 4 (clean, dented)	13.89	9.57

Thus each of these coins contains less than half (by volume) silver and more than half copper.

¹ The specific gravity of silver may be increased by *intense* hammering to 10.5; but such hammering as any ancient coins would have received in the process of striking is negligible.

² The small quantity of such impurities as tin contained in the coins is here neglected.

The second (No. 2) was evidently re-struck upon a Roman provincial coin, for traces of a previous inscription (PTPAI—Trajan) can still be seen upon it. On other Tetradrachms the original inscription is much more easily read, *e.g.* on No. 13 (p. 286). Thus the specific gravity of No. 2, and probably of No. 4, is simply that of the original Roman provincial coin.³ Dr. J. Hammer, in his essay on the quality of Roman coins, says⁴ that analysis of an Antiochene coin of Trajan's shows 0.572 fine, which gives a specific gravity of 9.68: while a coin of the same emperor of Caesarea in Cappadocia⁵ shows 0.625 fine, which gives a specific gravity of 9.77.

The marked decrease of specific gravity in the case of No. 1, together with the absence of any evidence of re-striking, seems to show that it represents a new⁶ issue by the Jews themselves.

With regard to the figure of a building which is found upon the Tetradrachms, it is probable that the fluted columns indicate stone,⁷ and that the whole structure is simply a conventional picture of a temple.⁸

The object inside, a box on four short legs, recalls

³ Cf. the silver denarius of Trajan, No. 36 (below), *sp. g.* 9.79.

⁴ In the Berlin *Zeitschr. für Numismatik*, 26 (1908), p. 113 (after Imhoof-Blumer).

⁵ *Ibid.* p. 112. Hammer calls the tetradrachms of Caesarea light tetradrachms (10.17 to 11.47 grs.).

⁶ Chronologically this came first (year 1). The Jews apparently started with a wholly new issue, and when this had been exhausted, or a considerable amount of Roman money had fallen into their hands, they resorted to the simpler device of adapting Roman coins for their own use.

⁷ So Prof. Kennedy (*P.E.F.Q.S.*, October, 1914, p. 198) in arguing against Mr. Rogers's theory that the building is the Tabernacle.

⁸ Cf. the temple (with some object also to be seen inside) on the coins of Herod Philip II (*e.g.* *Coins of Palestine*, Pl. xxiv. 20).

the representations of the Ark which are found in the Catacombs of Rome.⁹ Thus we have a conventional ark placed inside a conventional temple to show that the temple is the temple of Jehovah; and the coins bear witness to the purpose¹⁰ of the insurgents under Bar Cochba to rebuild the Temple at Jerusalem.

(ii) Closely allied to the Tetradrachms are the Denarii, *e.g.*

	Wt. in grms.	Sp. g.
p. 290, No. 13 (clean)	3.44	10.05
p. 293, No. 36 (slight traces of bluish green, black, and red)	3.42	9.79

Both these examples are re-struck upon Roman coins, the latter upon a coin of Trajan. Others, *e.g.* No. 72 (p. 298) and No. 78 (p. 299), are re-struck upon coins of Hadrian.

There can be no doubt therefore that, like the Tetradrachms, they are to be attributed to the period of the Second Revolt, A. D. 132-135.

(iii) The date of the "thick" shekels, as is well known, has long been a matter of dispute.

The history of the discussion has been summarized by Mr. G. F. Hill in the *British Museum Catalogue of the Coins of Palestine* (pp. xc-xciv). Mr. Hill points out the weakness of the objections which have been raised against the date of the First Revolt, and he brings forward a new argument from the evidence of the epigraphy of the coins. He shows that the rejection of this evidence as valueless by Prof. Schürer and

⁹ There by a curious association of ideas, though the ark corresponds to the Old Testament descriptions of the Ark of the Covenant, Noah is placed inside! For examples see J. Wilpert, *Die Malereien der Katakomben Roms* (1903), No. 56 (before A. D. 250).

¹⁰ For this see Schürer's *History*, I. ii, pp. 289 ff. (Eng. Trans.)

others is not justified by a careful study of the forms of the letters upon the coins; and the result of his investigation is distinctly, if not decisively, in favour of the date of the First Revolt.

There is a further consideration which points in the same direction. The inscription on the "thick" shekels—"Jerusalem the Holy"—and their weight (about 14.1 grammes) recall the inscriptions and the weights of the coins of Tyre. The resemblance between them also extends to the quality of their silver, as the following figures are sufficient to show :

"Thick" Shekels.

<i>Brit. Mus. Cat.</i>	Wt. in grms.	Sp. g.
p. 269, No. 1 (good condition)	14.11	10.43
p. 271. No. 20 (slightly darker surface)	14.01	10.36

Tyrian Shekels.

No. 47 (good condition, surface slightly dark)	14.22	10.46
No. 206 (dark)	14.15	10.35
No. 211 (darkish)	14.11	10.30

The Tyrian half-shekels are similarly of a high quality of silver, *e.g.*

	Wt. in grms.	Sp. g.
No. 214 (bright)	7.18	10.45
No. 244 (dark)	6.91	10.28

There are other coins in the Tyrian series which show a specific gravity somewhat less than this (though still high), *e.g.*

	Grms.	Sp. g.
No. 32	8.57	10.11
No. 245	6.62	10.16

With these we may compare the "thick" shekel, the analysis of which, Dr. Hammer says, gave 0.834 silver, 0.166 copper; whence its specific gravity works out at 10.14.

Thus we may fairly expect that light will be thrown upon the question of the date of the "thick" shekels by a study of the long series of Tyrian shekels and half-shekels.

Now it will be noticed that the series starts with thick dumpy coins, the shape of which closely resembles that of the Jewish shekels, *e.g.*

	Diam. (in.).	Date.
No. 1	0.9	before 400
No. 2	0.85	"
No. 15	0.8	400-332
No. 16	0.8	"

Then the coins become larger and thinner, and the resemblance in shape between them and the "thick" shekels¹¹ is lost.

From about the beginning of the Christian era, however, the Tyrian shekels show a distinct tendency to become thicker again. Thus we may compare

	Wt. (grms.).	Diam. (in.).	Date.
No. 49	14.22	1.15	B.C. 123/2
with No. 196	14.18	1.0	B.C. 2/1
and No. 55	14.13	1.1	B.C. 122/1
with No. 211	14.11	0.85	A.D. 55/56

The Tyrian half-shekels show a similar tendency to become thicker and smaller in area, *e.g.*

	Wt. (grms.).	Diam. (in.).	Date.
Compare No. 222	6.9	0.85	B.C. 91/90
with No. 244	6.91	0.7	A.D. 65/66
No. 221	6.60	0.85	B.C. 94/3
with No. 245	6.61	0.75	A.D. 69/70

¹¹ As specimens of the "thick" shekels we may take the two above mentioned:

<i>Brit. Mus. Cat.</i>	Weight (grms.).	Diameter (in.).
No. 1 (year 1)	14.12	1.0
No. 20 (year 5)	14.01	0.9

Judging by the Tyrian series, therefore, we should say that the Jewish shekels are either earlier than 300 or else later than the beginning of the Christian era.¹² The former date is out of the question, and in the latter period the only date which is at all probable is that of the First Revolt.

Moreover, Prof. A. R. S. Kennedy has drawn attention to the further resemblance between these Jewish shekels and the coins of Antioch¹³ in the time of Nerva, Vespasian, and Titus, *e.g.*

<i>Brit. Mus. Cat.</i> (W. Wroth).	Wt.(grms.) ¹⁴	Diam. (in.).
pl. xxii. 4, No. 226, Vespasian and Titus	14.21	0.9
pl. xxii. 5, No. 234, Vespasian	14.94	0.95
pl. xxii. 9, No. 267, Nerva	15.60	1.0

There are, therefore, several important pieces of evidence which go to support the conclusion strongly suggested on general grounds, viz. that the "thick" shekels of the Jews are not Maccabean, but that they belong rather to the period of the First Revolt.

Those general grounds are as follows:

(i) It is very doubtful whether the grant to Simon of the right of coinage (1 Macc. xv. 5, 6) referred to anything more than bronze coinage;¹⁵ and

(ii) it is not likely that Simon should have started a silver coinage which was discontinued by his still more prosperous successors (*e.g.* John Hyrcanus) and never revived till the days of Bar Cochba, and we

¹² Cf. Imhoof-Blumer, quoted by Schürer, *Eng. Transl.*, I. ii, pp. 382, 383.

¹³ *Hastings's Dictionary of the Bible*, art. "Money", vol. iii, p. 430.

¹⁴ These are the weights given by W. Wroth (219.3 gra., 230.5 gra., and 240.7 gra. respectively).

¹⁵ Babelon, *Rois de Syrie*, p. cxliv: "le roi de Syrie . . . n'a pas dû accorder à Jérusalem d'autres franchises que celles qu'il donnait aux villes d'Antiochéens et aux colonies proclamées libres de son empire".

have no trace whatever of any other Jewish silver coinage in the period 130 B.C.-A.D. 130.

And now at length a final confirmation of this view seems to be on the point of appearing.

In the *Revue Biblique* for April 1914¹⁶ M. J. Germer-Durand des Augustins de l'Assomption publishes a description of the Jewish kitchen which has been recently unearthed in Jerusalem on the site commonly called the Grotto of the Tears of St. Peter. The part of his description which concerns us here is as follows: 'La présence de monnaies juives ou de monnaies romaines contemporaines de la première révolte des Juifs, en déterminait la date. Tout cela remontait à l'époque de l'Évangile. Un siècle et un demi-siècle d'argent trouvés au cours de fouilles donneront une idée des monnaies de l'époque.'

M. Germer-Durand gives a reproduction of "siècle et demi-siècle" trouvés dans les fouilles à Saint-Pierre", and he adds: "Les numismates discutent sur l'âge de ces pièces, qu'ils voudraient faire remonter à l'époque des Macchabées. Je les crois seulement du temps du siège, et j'ai de bonnes raisons pour cela; mais ce n'est pas le moment de les exposer."

J. W. HUSKIN.

ADDENDUM ON THE SPECIFIC GRAVITY OF DARICS AND CROESUS COINS.

I take this opportunity of setting down the results which I obtained by weighing some of the Darics and Croesus coins in the British Museum. The references are to the *British Museum Catalogue of Lydia*, in the case of the Lydian coins, and in the case of the others, to the British Museum Registration Numbers.

¹⁶ pp. 234 ff.

" "Of the year 3,"

Lydia.

	Wt. in grms.	Sp. g.
30	10.65	19.01
31	8.03	19.12
32	8.03	19.21
33	8.02	19.10
34 ¹⁸	8.05	19.22
35 (slight traces of red impurity and containing a hole)	4.11	18.86
36	2.70	19.25

Hence the average specific gravity works out at 19.11.

Gold Darics.

	Wt. in grms.	Sp. g.
1866		
12.1.4093	8.27	18.92
I		
A E 17	8.36	18.91
1866		
12.1.4101	8.40	18.79
74		
7.435.15	8.20	19.07
66 ¹⁹		
12 W 1		
4095	8.32	19.04
66		
12 W 1		
4098	8.33	19.02
66		
12 W 1		
4094 (traces of black)	8.32	18.98

Hence the average specific gravity works out as 18.96.

¹⁸ In the *Numismatic Chronicle*, 1887, p. 303, Dr. B. V. Head gave the specific gravity of the coin represented in the B. M. Guide, Pl. i. 13, weighing 124.2 grs. (*i.e.* 8.05 grms.)—which I take to be Lydia (34) in the present catalogue—as 20.09. This of course is due to a slip, as the specific gravity of pure gold is only 19.258.

¹⁹ This I take to be the Daric of which the specific gravity was given by Head in the same article: wt. 129.28 grs., *i.e.* 8.31 grms., sp. g. 19.09. Here again Head's figure seems too high.

Hence if we may assume that the other metal in these coins is silver,¹⁰ the fineness of the Croesean staters works out at 0.991, and that of the Darics²¹ at 0.981.

If therefore we take²² 126 grs. (*i.e.* 8.17 grammes) as the average weight of a Croesean stater, and 130 grs. (*i.e.* 8.42 grammes) as the average weight of a Daric, we obtain the following result:

A Croesean stater contains	8.10 grammes of pure gold
and a Daric contains	8.26 " "

That is, the intrinsic value of a Daric is 1.98 % higher than that of a Croesean stater.

This seems to be a convenient place to record the specific gravity of two Lydian silver coins:

	Wt. in grms.	Sp. g.
(39) (darkish, with traces of red impurity)	9.62	10.18
1914		
9.5.286 (dullish)	5.23	10.24

This gives²³ the former (39) a fineness of 0.851
and the latter (1914. 9.5.286) " " 0.882²⁴

J. W. H.

[Owing to the author's absence on military service, this paper has not had the advantage of revision by him.—Edd.]

¹⁰ In this calculation I have taken 19.26 as the sp. g. of pure gold and 10.47 as that of pure silver.

²¹ *i.e.* the Darics contain 1.9 % alloy (cf. Herodotus, iv. 66). Head gave the percentage of alloy as 3 (*H. N.* p. 826).

²² So Head, *loc. cit.* For the weights of practically all known Darics see K. Regling, *Klio*, 1914, pp. 99 ff.

²³ I take the sp. g. of pure copper as 8.79.

²⁴ Cf. Herodotus, i. 94.

X.

INFLUENCE OF THE ENGLISH COIN-TYPES ON THE DANISH IN THE THIRTEENTH AND FOURTEENTH CENTURIES.

[SEE PLATE IX.]

Note.—This article was originally conceived as an appendix to a description of a hoard of short-cross pennies from Ribe, which it has, however, been found more convenient to postpone to a subsequent issue of the *Nom. Chron.* On Pl. IX the reverse of No. 5 should be omitted, and Nos. 7 and 9 inverted.

IN the century that followed the death of Waldemar II the Victorious (1241), a time full of internal strife and civil wars, the penny was coined of even more debased silver, indeed it was at last almost completely a copper coin, and the proportion of silver in coined money, which in 1231 was 1:2.5, grew gradually worse, and was in 1313 1:10.6.¹ Under these circumstances the values were often expressed in the mark of silver, in French groats, or—more frequently—in English sterlings. Not till the last half of the fourteenth century was the money of Lübeck in vogue with the Hanseatic merchants, replacing the English sterling money.

As the English coins—as appears from several finds of this time—were commonly known, in fact almost current in Denmark, one would expect to find them imitated in genuine Danish coinage. Real *deniers esterlins* do not appear however—that was alien to the Danish coinage of that age; but just like the

¹ See list in P. Haauberg, *Danmarks Myntvæsen og Mynter i Tiderummet 1241–1377*, p. 42. (Reprint from *Aarbøger for nordisk Oldkyndighed og Historie*, 1884.)

French gros tournois² the English pennies have also left their traces on the Danish types of coins.

The influence of the Irish penny type issued (1210-16) under John Lackland is perhaps the most evident :

Obv.—Bust of king, facing, crowned, within a triangle ; in r. hand, sceptre ; to r. quatrefoil ; arranged outside the triangle, IOHANNES REX.

Rev.—Within a triangle, a flaming star above a crescent ; in each angle a small star, and at each point a cross ; stars also at sides of triangle, arranged outside which is the name of the moneyer and that of the mint. [Pl. IX. 1.]

The first Danish imitation of this type is a coin attributed to King Waldemar II (1202-41) and Bishop John of Sleswick (1238-44) (Hauberg, *Danmarks Myntvæsen*, 1146-1241, Tab. vi. 50) :

Obv.—Crowned head, facing, in a triangle whose upper line coincides with the under line of the crown ; on the two other sides a greater ring between two smaller.

Rev.—Bar on a crozier within a triangle with two rings outside the upper line ; on the two other sides a greater ring between two smaller. [Pl. IX. 2.]

As may be seen from the illustration the triangles have been turned upside down. This is also the case with the two following Danish imitations of the Irish type. The Irish form of the crown has further been replaced by the peculiarly Danish form of the time of Waldemar II. Rings are used instead of legends.

Nearer the Irish prototype is a coin of Eric Plovpenning (1241-50), attributed to northern Jutland

² See P. Hauberg, "Les monnaies françaises du moyen âge dans les trouvailles faites en Scandinavie", *Procès-verbaux et mémoires du Congrès international de numismatique et d'art de la médaille contemporaine tenu à Bruxelles*, pp. 773-89. Bruxelles, 1910.

(Hauberg, *Danmarks Myntvæsen og Mynter*, 1241-1377, p. 92, No. 2):

Obv.—Crowned head within a triangle; on each side of this a cross between two stars.

Rev.—Crescent and four stars; same border as the *obv.*
[PL. IX. 3.]

The form of the crown is still slightly reminiscent of the time of Waldemar II, but is somewhat assimilated to the Irish form, which is more closely related to the form which is found on Danish coins of the following period. On the reverse we again find the crescent, whereas the great flaming star is now replaced by a little star, like those found in the angles of the triangle. The small crosses outside the legend on the reverse of the Irish prototype are here more prominent and take, together with small stars, the place of the legend both on obverse and reverse.

A coin of the same king, attributed to Ribe, shows a related obverse (Hauberg, *op. cit.*, p. 92, Ribe, No. 2, illustrated; Mansfeld-Bullner, *Afbildninger af Danske Mønter*, 1241-1377, No. 32):

Obv.—R·|H·|H· at the sides of a triangle made of pearls, seldom of lines; within, a head, crowned; in each angle above, a ring. [PL. IX. 4.]

The forms of the letters R and H are the common Danish forms (the English-Irish forms B and X). The form of the crown corresponds to the Irish one, but is also the common Danish form of the age.

In more eastern Denmark also the influence is to be traced. A coin of the same king, referred to Roskilde (Hauberg, *op. cit.*, p. 91, No. 5), has on one side: H|R|U around a triangle within a star; at each point a cross. [PL. IX. 5.] (The other side has *|R|H|H in

the angles of a cross.) The triangle with crosses at the points is derived from the reverse of the Irish pennies. The star, though of a common form, comes from the same prototype. ERQ indicates of course the name of King Eric.—A variation has G|P|Q , and lilies instead of crosses at the points of the triangle.

To Lund under the same king is attributed the following coin (Hauberg, *op. cit.*, p. 89, No. 3; Mansfeld-Büllner, *op. cit.*, No. 3):

Obv.—Crown in a triangle with a cross at each point: at each side three small crosses.

Rev.—Mitre in the same border as on the obv. [Pl. IX. 6.]

The symbols of the royal and episcopal power are here dominant, but the border of the triangle is still reminiscent of the foreign prototype. Small crosses replace legends.

Of King Abel (1250-2) a coin of Lund (Hauberg, *op. cit.*, p. 93, No. 1; Mansfeld-Büllner, *op. cit.*, No. 42) has on the obverse $\text{✠} \overline{\text{A}} | \text{B} \overline{\text{L}} | \text{R} \text{X}$ around a triangle, wherein $\overline{\text{D}}$. [Pl. IX. 7.] The forms of the letters $\overline{\text{A}}$ and $\overline{\text{D}}$ are found, but more rarely, on English (Irish) coins; they are not common however on Danish coins. The form X reflects clearly the Irish prototype (the Danish form is X , see above). Also the distribution of the legend, especially with $\text{R} \text{X}$ on one side of the triangle, shows this prototype; on the other hand, the triangle has been turned upside down. In place of the king's bust is found $\overline{\text{D}}$, *i. e.* *Danorum*.

As late as the time of Eric Glipping (1259-86) we find traces of the Irish type. A coin of Lund (Hauberg, *op. cit.*, p. 100, No. 4; Mansfeld-Büllner, No. 111) has on the obverse: Crown above a ring surrounded by

a triangle, at each side a cross between two points.
[Pl. IX. 8.]

Closely related to this obverse type (but with a different reverse) is the following coin of the same king attributed to Halland (Hauberg, *op. cit.*, p. 103, No. 1): Like the previous, but instead of crown a recumbent G [Pl. IX. 9] (a recumbent G is also found on a coin of Ribe of this king, see Hauberg, *op. cit.*, p. 115, No. 16).

With this we have rather digressed from the original type. Several coins with the triangle as the chief design are certainly found in this period, but they seem to be without connexion with the Irish type (see the figures in Mansfeld-Büllner, *op. cit.*, Nos. 88, 135-7, 141, 142, 227, 278, 299-301, 452, and 520).

Influence of the Irish type is seen also in a North-Jutland coin of Eric Glipping (Hauberg, *op. cit.*, p. 107, No. 1):

Obv.—Star above crescent, surrounded by twelve rings.

Rev.—Flaming star surrounded by twelve crosses.

[Pl. IX. 10.]

The obverse in itself would perhaps not be sufficient to prove influence from the Irish type, the crescent and star being too common designs on the coins of this time. But this "constellation", the star above the crescent, appears as sole main type—with one exception²—only on this and the following coin. Decisive in this connexion is the design on the reverse, the flaming star, which we only find on this Danish coin.

Another North-Jutland coin is issued under the succeeding king Eric Menved (1286-1319) (Hauberg, *op. cit.*, p. 130, No. 3):

² An unpublished coin of Lund of Eric Plovpenning (1241-50), and Archbishop Uffe (1228-52).

Obv.—Similar to the former but without rings.

Rev.—Double cross, the limbs ending in pellets; in the centre a pellet. [Pl. IX. 11.]

The reverse shows the sterling cross, but without small crosses in the angles. On this is based the conjecture that the obverse also is a loan from Anglo-Irish pennies.

In Ireland the coinage was taken up again after 1248, but while the obverse corresponded exactly to the early type of John, the reverse was that of the English long-cross type. During the time of the Edwards the type was issued with long single cross on the reverse, and the obverse only altered in having a triangle so arranged round the king's portrait (without sceptre) that the base of the triangle lay over the crown and its apex under the neck. The development of the type has, curiously enough, taken the same course in Ireland as in the oldest Danish imitations.

It is more difficult to show the influence of the English short-cross type (coined 1180-1247) on account of the many related cross forms on the Danish coins, so that it is not always easy to decide if the influence is English or not. The English obverse type with its curious crown, curls, and beard, is not found at all on Danish coins. On the other hand, as above mentioned, voided crosses are a very common design, which only in some cases indicates influence of the English reverse type.

To Canute VI, 1182-1202, is attributed a coin from Ribe (Hauberg. *Danmarks Myntvæsen*, 1146-1241, T. iv, No. 20) with this reverse: Cross made by a crozier and double transverse; in the upper angles a mitre and a star; below, two crosses pommées. [Pl. IX. 12.]

While the coins of Ribe at this time have the king's bust on the obverse, they have on the reverse designs of ecclesiastical character symbolizing the bishop's part in the coinage. The double transverse, ending in pellets, and the crosses pommées indicate an English prototype.

We find a further development of this coin-type on a coin from a great find at Grenaa, deposited c. 1220 (unpublished): The mitre has here been replaced by a pellet, and each of the crosses pommées by three pellets. [Pl. IX. 13.] Without the connecting link of the previous coin we should not be able to perceive foreign influence.

The short-cross type is more distinctly recognized on the reverse of another coin from the same find. Double lined cross with a pellet in the centre and four pellets (or a cross pommée) in each angle. [Pl. IX. 14.]

The Scottish short-cross penny, which was coined 1195-1249 as an imitation of the English one, and which in the reverse design differs only from it in having stars instead of crosses pommées, seems to have been the prototype for the reverse of the following two coins of Ribe attributed to Waldemar II (Hauberg, *Danmarks Myntvesen*, 1143-1241, T. vi, Nos. 37 and 38):

Double lined cross with stars in each angle (found on Fanø). [Pl. IX. 15.]

Cross voided with small crosses in two opposite angles and stars in the other two. [Pl. IX. 16.]

The above-mentioned coins are attributed to Ribe on account of provenance, obverse types, weight, and size. It is characteristic that the English influence first asserts itself at a place where the commercial connexion with England was very considerable.

In the following period we find traces of the English cross type in more easterly Denmark. A coin of Roskilde is described by Hauberg, *Danmarks Myntvæsen og Mynter*, 1241-1377, p. 91, No. 6 (illustrated: Mansfeld-Büllner, Nos. 21 and 22):

Obv.— \cdot |R|H|8 in the angles of a voided cross, within which is a cross of pearls with a pellet in the centre; each arm ends in a crescent.

Rev.— Ω |H|P| Ω in the angles of a voided cross with a pellet in the centre; the arms end in pellets.

[Pl. IX. 17.]

The reverse shows distinctly the English cross type, but the crosses pommées are replaced by letters. HPI means here certainly *episcopus*,⁴ but possibly it is developed from HRI (*i. e.* "Eric", see above, fig. 5). The cross on the obverse is not itself attributable to the English cross (for similar crosses, *vide* Mansfeld-Büllner, *op. cit.*, Nos. 168-9 and 178); but \cdot | might, however, in this connexion be derived from the crosses pommées.

Of this coin there exists the following variation (Hauberg, *ibid.*: Mansfeld-Büllner, *op. cit.*, Nos. 23 and 24):

Obv.—Without the inner cross of pearls.


Rev.—A crescent in each angle of the cross. [Pl. IX. 18.]

Precisely the same reverse is found on a coin of Roskilde of Eric Glipping (Hauberg, *op. cit.*, p. 105, No. 8).

Of the time of Eric Menved there is a coin from

⁴ This interpretation is founded on the sign of abbreviation Ω . HPI is found on the coin of Roskilde of Waldemar II and Bishop Nicolaus (1225-49). Hauberg, *Dann. Mynte.*, 1146-1241, T. vi. 28.

northern Jutland with a voided cross without figures in the angles. It is mentioned above (Pl. IX. 11) among the coins influenced by the Irish type.

Under the same king, Duke Waldemar (1283-1312), a coin was struck in Sleswick with  on the obverse, and with the following reverse (Hauberg, *op. cit.*, p. 138, No. 3): Cross voided; a pellet in each angle. (The pellets in the circumference are, like those on the previous coin, developed from the pearl circle of the older coin types.) [Pl. IX. 19.]

Of the two last-mentioned coins I have still taken the short-cross penny as the nearest prototype, but we have now come to the point at which the eventual English prototype must be sought in the later form of the sterling type.

In 1248 the long-cross type was issued in England; it differed mainly from the older type in having the arms of the cross on the reverse lengthened to the border of the coin, and the crosses pommées replaced by three pellets in each angle. The cross of the coin type in Scotland was also altered, but in Scotland the stars in the angles were retained.

Both these types are found imitated in Denmark. Of Eric Glipping are found two coins of northern Jutland with the same obverse (lily, surrounded by seven rings, *vide* Hauberg, *op. cit.*, p. 109, No. 8; Mansfeld-Büllner, *op. cit.*, Nos. 187 and 186), and with the following reverses:

Cross, voided, with three pellets in each angle.

[Pl. IX. 20.]

Cross, voided, with star in each angle. [Pl. IX. 21.]

A coin of Ribe of the same king (cf. Hauberg, *op. cit.*, p. 112, No. 3; Mansfeld-Büllner, *op. cit.*, Nos. 222-5)

has on one side $\Theta|R|\Theta|\chi$ in the angles of a voided cross. (Pl. IX. 22.)

Here too it may be supposed to be an imitation of the English double cross, but designs with double crosses, whose different forms are closely associated, are very common in this period, and can arise from many other sources than the English type (*vide* Mansfeld-Büllner, Nos. 56, 71, 102, 131, 169, 228-9, 324, 437, 470, 481, 502-4, 525, 569, 577, 641, 661, 667, 672).

With Edward I (1272-1307) the sterling type was altered again. On the obverse came a crowned head of quite a new type. On the reverse the double cross was replaced by a single one, while the three pellets in the angles of the cross were retained. The type is dominant in England to the time of Henry VII. The Scottish type was correspondingly altered: here too a long single cross appeared on the reverse, but the stars in the angles were retained.

While this type also was imitated in many places in western Europe, in Denmark only the reverse type was reproduced. As early as the reign of Eric Glipping appeared a coin of northern Jutland (Hauberg, *op. cit.*, p. 108, No. 6; Mansfeld-Büllner, No. 179) with *obv.* $\Theta|R|\Theta|\Theta$ in the angles of a voided cross, and *rev.* Cross with three pellets in each angle. [Pl. IX. 23.] (Variations of this coin have one pellet in each angle or one pellet in one of the angles.)

The same reverse is found on a coin of Ribe of the succeeding king Eric Menved (Hauberg, p. 134, No. 12; Mansfeld-Büllner, No. 472). In eastern Denmark this reverse is used on two coins of Lund of this king (Hauberg, p. 120, No. 1, and p. 121, No. 11; Mansfeld-

Büllner, Nos. 283 and 304), and also on a coin of Lund of Magnus Smek (1332-60) (Hauberg, p. 155, No. 22; Mansfeld-Büllner, No. 662).

Still nearer to the English prototype is a coin of northern Jutland of Eric Menved (Hauberg, p. 129, No. 1; Mansfeld-Büllner, No. 423) with the reverse: Cross, with three pellets in each angle, superimposed on a large annulet. [PL. IX. 24.] The pellets beyond the inner ring are certainly developed from the pearl circle on the earlier coins, and here also they replace the legend of the English prototype.

The corresponding Scottish type is imitated on a coin of Ribe of Eric Glipping (Hauberg, p. 114, No. 12; Mansfeld-Büllner, No. 237) with the reverse: Cross, with a star in each angle. [PL. IX. 25.]

These stars have, like those on the Scottish sterlings, a hole in the centre, a form certainly not common, but nevertheless not rare on the Danish coins.

The same reverse is also found on two Schleswig coins of Eric Glipping (Hauberg, p. 119, No. 22; Mansfeld-Büllner, No. 279) and of Christopher II (1319-32) (Hauberg, p. 151, No. 1; Mansfeld-Büllner, No. 622).

After the time of Christopher II the coinage gradually ceases in Denmark, and completely disappears under Waldemar IV Atterdag. When Eric of Pomerania reissued the coinage, the Hanseatic standard and partly German coin types are the model for the Danish.

From c. 1405 to 1449 were issued, first in Lund and Næstved, later (from 1439) in Malmö, coins named "Sterlinge" or "Engelske"; they correspond, however, most nearly to the German "Dreiling".

G. GALSTER.

XI.

SOME LIGHT COINS OF CHARLES I.

UNTIL the month of August, 1626, the weight and fineness of the gold and silver coins were in accordance with an indenture of 17 July, 21 James I (1623), the terms of which had been adopted in their entirety by Charles in his commission of 1 April, 1625, and the mint was working on that basis.

On 14 August, 1626, another commission was directed to Sir Edward Villiers and Sir William Parkhurst, the joint wardens, and other officers of the Tower mint, by which the three existing standards of fineness were confirmed, namely, "angel" gold, crown gold, and silver of 11 oz. 2 dwt. fine. The order then declared that the pound troy of silver should make 70*s.* 6*d.* of current moneys in such pieces as were then usually coined. From each pound weight of silver moneys 5*s.* 6*d.* was to be taken up by the officers for the king's use, out of which sum 14*d.* was to be paid for the working and an additional penny for the better sizing of the coins. It was further declared that the pound troy of crown gold should make £44 of current moneys, in such pieces as were then usual. From each pound weight of gold coins 52*s.* was to be taken up, of which 5*s.* was for workmanship. The commissioners¹ were

¹ The office of master-worker had been vacant since the sequestration of Randell Cranfield, whose place was filled by these commissioners.

to be allowed, as remuneration, 17*d.* and 14*d.* on each pound weight of gold and silver respectively (Pat. roll, 2 Chas. I, part 13, *dors.* 18).

It will be noticed that the fine gold coins are omitted from the order as to weights, possibly because the angel was not regarded as a coin in general circulation. The changes effected by this commission were: (1) an appreciable reduction of the weight of the crown gold and silver coins; (2) a large increase of the amounts "taken up" for the king from coins of both metals; and (3) a reduction of the amount allotted for workmanship of the crown gold pieces. The old and the new weights of the coins were as follows, one denomination in each metal being chosen as an example:

The shilling, according to the indenture of 21 James I, weighed $92\frac{2}{11}$ grs.; now it was to be $81\frac{3}{4}$, a reduction slightly exceeding 10 grs.

The gold unite, under James's indenture, was $140\frac{2}{11}$ grs.; now it was to be $130\frac{1}{11}$, a reduction slightly less than 10 grs.

The other denominations would, of course, be proportionately varied in weight.

It has been suggested that the sum into which the respective pounds troy were to be sheared was inserted by mistake (Kenyon, p. 149), but having regard to the fact that the seignorage was also materially altered, I am inclined to think that the order was a deliberate experiment, although the lapse from James's standard of weight was followed by repentance within a few weeks. On 4 September, 1626, a proclamation announced that all coins should be paid and received in such species and at such weight, fineness, and value as were current on 1 August then last, and not other-

wise; and that all moneys coined since 1 August in any manner other than in accordance with the proclamations in force on that day should be esteemed as bullion and be no longer current (Privy Seal warrant, 2 Chas. I, 280). Three days later, on 7 September, a new commission instructed the two wardens (*inter alia*) to coin all moneys of such fineness, number, weight, and value as were authorized before 1 August then last, until the indenture should be "perfected"; and their reward and profit should be as allowed to them by the commission of 14 August, and no more (P. S. warrant, 2 Chas. I, 289).

The *status quo* was thus re-established so far as the intrinsic value of the coinage was concerned.

Up to this point I have merely recapitulated, for the sake of clearness, the historical proof that a lighter currency was ordered and subsequently withdrawn. As it seemed worth while to pursue the subject beyond the stage at which Ruding left it, I sought for and obtained twofold evidence that such coins were actually struck and presumably circulated. The confirmation was derived from the Exchequer accounts and from the Medal Room in the British Museum.

The wardens' account, running from 1 April, 1626, to 31 March then next, deals explicitly with this particular issue. Among the sums received for the king's use are two amounts taken up by virtue of the commission dated 14 August, namely £1,630 4s. 0d., being 52s. for each pound weight in respect of the coining of 627 lbs. of 22^c gold; and £528, being 5s. 6d. the pound weight in respect of 1,920 lbs. of silver (Declared acc'ts, Pipe Office, 2,051). I observed in this account that the seignorage on gold and silver coins

before and after the operations in August was 15s. and 2s. on each pound weight respectively, that is, the amounts prescribed by James's last indenture and adopted by Charles in his first year. The difference in the ratio of seignorage is rather startling.

We thus have proof beyond question that a considerable quantity of gold and a comparatively small quantity of silver bullion were converted into light coins at that time. The privy mark then in use at the Tower was the cross on steps, or cross calvary, therefore any pieces struck in obedience to the order of 14 August should be marked with that device. Among the Tower shillings of Charles I in the National collection are two unclipped and fine specimens, with the cross on steps mark, which ought I believe to be regarded as belonging to the light issue.

The first, *Hawkins* type 1, weighs 81.4 grs.; the second, type 1A, weighs 79 grs. As is stated above, the prescribed weight of the shilling of August, 1626, was $81\frac{3}{4}$ grs.

By way of contrast, three others of type 1A, with the same mark, weighed 91.5, 92.6, and 87.2 respectively. Two others, of type 1a, weighed 91.7 and 93.6 grs. There can be no doubt, I think, that the five shillings last mentioned represent the normal standard of weight ($92\frac{2}{3}$) which obtained before and after the five weeks in question. I say "five weeks" because the proclamation of 4 September and the amending commission of the 7th draw the line at 1 August, which seems to imply that the striking of the coins was begun a fortnight in advance of the sealing of the formal order.

I was not successful in finding any silver coins of

other denominations which could be attributed to the light issue, nor could I find a unite or any smaller gold pieces corresponding in weight with the instructions of 14 August. It would be interesting if Fellows of the Society, and others, would weigh any unclipped (but not necessarily fine) coins marked with the cross on steps, in order that the gold pieces and the other denominations in silver may be identified. These light coins are doubtless uncommon; possibly very few have survived, as they were to be reckoned as bullion only, which meant a speedy return to the crucibles at the mint or elsewhere. There would be no temptation to hoard or export them seeing that the intrinsic values were less than those of other English moneys in circulation at that time.

On the whole, it would appear that the coins to which I have called attention should be classified separately in any arrangement of the Tower issues of Charles I.

HENRY SYMONDS.

MISCELLANEA.

A PLUGGED AND COUNTER-STAMPED WEST INDIAN ONZA.

THE British Museum, through the generosity of Mr. Alexander Mann, has recently acquired a West Indian colonial coin, which appears to be unique and unpublished, and therefore of sufficient interest to be recorded in the *Numismatic Chronicle*.



It is of gold, and was originally an onza d'oro of Lima, of the usual types and of rude fabric :

Obv. Cross potent, with the castle and lion as usual in the angles ; pearly border.

Rev. Traces of legend outside pearly border. The pillars of Hercules : L.—S.—N | P.—[V]—A | 7.—3.—8.

Size 27 mm. (1.05 in.). Cp. Heiss, *Mon. Hisp.-Crist.*, Pl. 45, 17 (1703); Catal. M. Vidal Quadras y Ramon, No. 9925 (1733).

This piece has been plugged in the centre, and on the reverse of the plug two countermarks have been impressed, one showing an alligator to r., the other the letters G C in cursive. The present weight of the coin is 415.4 grs. (26.92 grms.). In other words, the deficiency of the piece

before it was plugged has been corrected and the weight brought up to the normal weight of the onza d'oro.

The Spanish gold coins circulating in the West Indies in the middle of the eighteenth century consisted partly of doubloons deficient in weight owing to clipping.¹ The hammered pieces, owing to the ease with which they were clipped, were rated at 5s. less than the milled (£4 15s. instead of £5).²

In 1773 the clipped unmilled Spanish gold was called in; and it would appear that, instead of melting all the coins down and reissuing them, the process of plugging and counter-marking was adopted.

Where was this coin plugged and counter-marked? The cayman or alligator at once suggested, to more than one person, the crest of the Colony of Jamaica.³ It was natural, on this question, to consult Mr. Howland Wood, of the American Numismatic Society; and he points out that the analogy of other initials used in a similar way indicates that they belong to the person responsible for the plug. He would date the stamp not earlier than 1773, when the reason for plugging and counter-marking pieces deficient in weight was provided by the legislation to which allusion has already been made. He compares the style of the counterstamp with that of No. 108 in his article on the Coinage of the West Indies,⁴ which dates from about 1810, to judge from the dates of the coins on which it was impressed, and which was probably of Jamaican origin. Mr. Wood, assuming the possibility of the two stamps being the work of the same man, suggests that the stamp on the gold coin was impressed about 1800. The workmanship of the two stamps, however, does not seem to me to be so much alike as to justify the attribution of them to the

¹ See R. Chalmers, *History of Currency in the British Colonies*, p. 101 f. The Peruvian onzas of 1707, 1717, 1734 described by Weyl (*Fonrobertsche Sammlung*, p. 984 f., Nos. 8882, 8886, 8892) are, however, all three of full weight (26.90-26.80 grms.), although two of them are of the hammered sort which could be clipped without detection.

² Chalmers, p. 104, from E. Long's *History of Jamaica*, 1774.

³ The arms were granted to Jamaica in 1661; the crest is an alligator on a log. The fact that on the arms the alligator is passant to dexter, and on the countermark to sinister, cannot weigh against the identification proposed.

⁴ *American Journal of Numismatics*, xlviii, p. 115.

same hand; though as to their proximity in date there cannot be much doubt.

The chief difficulty in accepting the attribution to Jamaica seems to me to lie in the fact that, unless the coin was plugged and stamped before 1758, the counterstamps must date from after the period when the Jamaican authorities had already adopted the letters G R as their official counterstamp. The later stamps, with the letters G R crowned, have it is true been attributed by some writers to Trinidad; but there is no doubt about the earlier stamp being Jamaican. Having once adopted the G R stamp, would the authorities have given it up for one which makes no allusion to the reigning sovereign?

Mr. Allan has made the very ingenious suggestion that the cayman and the letters G C together may indicate the island of Grand Cayman, a dependency of Jamaica. It is difficult, however, to say whether this little place can ever have had the civil and financial organization which is implied by the plugging and counter-stamping of foreign coin. In 1774, according to Long,⁵ it had no more than 160 inhabitants, men, women, and children. "They have a chief, or governor, of their own choosing, and regulations of their own framing; they have some justices of the peace among them, appointed by commission from the governor of Jamaica; and they live very happily, without scarcely any form of civil government." They could not even get married at home, but had to visit Jamaica for the purpose. If then the counterstamp represented Grand Cayman, it would probably have been made and impressed in Jamaica.

In the circumstances, and pending the discovery of a document explaining the letters G C, I prefer to leave the attribution of the stamp uncertain.

Since the above was written, I have heard again from Mr. Howland Wood, from whose letter I extract the following:

"The best explanation I can give about the changing of the stamp from the regular on your plugged coin is this. Silver was largely counterstamped by the Insular and Provincial Governments to legitimize certain Spanish coins of approved weights and sizes, for use on that island. When

⁵ Vol. i, p. 312.

it was a question of adapting or standardizing the gold coinage other elements crept in,—namely, a determination of what was good and what was counterfeit, what was heavy and what was light. In many cases the system of coins on the islands, or the standards used, did not conform with the weights of the gold coins in circulation, as they were either Spanish or Portuguese gold. Consequently experts were entrusted with this work, who rejected the counterfeits, and brought up to the required standard the light weight gold, or in cases where the Spanish or Portuguese systems did not conform with the Island standard, raised the weight by plugging of all the coins examined. As near as I am able to determine, the first coins so treated were simply plugged and not stamped, but unscrupulous people inserted plugs of base gold so that it became necessary to stamp these plugs, and in nearly every case that I know of the initials or marks on these plugs did not bear the names of localities or rulers, but probably the initials of the responsible persons, for we know of several examples where the initials stand for the people that superintended this work. A glance through the gold coins that I have mentioned will show this in a number of instances where the coins have been plugged—the I W on the Grenada gold, the G H on the St. Vincent, the E B on the gold tested in New York, &c. On the other hand, the gold that was not plugged for the most part bore some sort of a governmental stamp, as the G R on the pieces for Jamaica under the Act of 1758, for you will note that both the gold and silver are simply stamped, and no attempt made at changing the weight by either holes or plugs. The same remark applies to the gold of Guadeloupe of 1811.

“I have picked up one or two more gold coins since I wrote my monograph, plugged and stamped with initials, none of them, however, anywhere near as interesting as your piece. In other words, I consider the stamp on plugged gold coins the endorsement of the person responsible, rather than the government responsible. We have it on absolute record that this happened in New York, and New York at that time was in close touch with the West Indies and a great deal of bullion went back and forth.”

G. F. HILL.

THE PRICE OF DUNKIRK.

THE following particulars as to the disposal of the sum received by Charles II from Louis XIV as the consideration for a transfer of this seaport to France may not be without interest at the present time, when our ally is energetically defending her most northerly harbour against German aircraft and long range artillery on Belgian soil.

P.R.O., Declared accts., Pipe Office, 2088.

Henry Slingsby, the master-worker at the Tower, accounts for 1,500,000 crowns, or 4,500,000 livres Turnois, received in 1662 for the sale of the town and citadel of Dunkirk to the French king, in 300 chests each containing 5,000 crowns or 15,000 livres Turnois. Of this sum, the contents of 272 chests were converted and coined 'in the new way' by the mill and press into £295,462 2s. 3½d., being calculated at 60s. the pound weight. The residue, in 28 chests, was similarly converted (in 1670) into £30,408 13s. 1d. of British standard moneys. The total yield was £327,739 18s. 1½d., which is probably the gross amount.

Hallam, in his *Constitutional History* (1846, vol. ii, p. 68), says that the sum agreed for the alienation of the town was 4,000,000 livres, which was reduced by 500,000 livres for prompt payment.

HENRY SYMONDS.

XII.

A. CHRONOLOGICAL ARRANGEMENT OF THE COINS OF CHIOS; PART III.

(Continued from p. 429, *Num. Chron.*, 1915. SEE PLATES X, XI.)

PERIOD VIII. 334-190 B.C.

IN summarizing the historical events of the last period I overstepped the boundary allotted to it, and alluded to the peaceful era that opened in Chios under the rule of the Ptolemies. It was necessary, from the numismatic point of view, to close the period with the Macedonian occupation of the island, because it is to be presumed that all autonomous coinage ceased for a while after that event. The question that then arises is, how long did that inactivity last?

It has been suggested,⁷³ and fairly generally accepted, that no coins, except some unimportant bronze, were struck in the island between about 350 and 190 B.C. But, without attempting to decide exactly when the last silver issues appeared in the fourth century, the Pityos find has shown us that numerous issues of bronze were made down to 334 B.C. at least. Also, as I have remarked above, there is reason to believe that possibly one bronze series allied to the previous ones—my type

⁷³ Head, *Historia Numorum*, ed. 1911, p. 600; and Babelon, *Traité*, ii, p. 1045.

No. 55 [PL. XIX. 18-19 of *Num. Chron.*, 1915], with its accompanying small pieces—was issued somewhat later than 334 B.C., but before the period now to be discussed. The most likely time for this would have been the years that intervened between the death of Alexander and the appointment of Antigonos as governor of Asia, say from 323 to 311 B.C. But for ten years again after the latter date, with Antigonos absolute master of Chios, it is highly improbable that any local coining of money was permitted. We come then to the year 301 B.C., to the death of Antigonos, and the passing of his dominions into the hands of the Ptolemies, before it can safely be assumed that municipal liberty was restored to the islanders. In other words, the present period might more accurately be described as from 301 to 190 B.C., thus leaving the thirty-three years that elapsed since the close of the last a practical blank as regards the local coining of money.

But having progressed so far we then find that all written records cease. Chios disappears from history for the best part of a century. It may be this very silence on the part of historians that has persuaded numismatists to refuse any noteworthy output to the Chian mint during the third century, although such inactivity is very unlikely in view of what we know of the prosperity reigning in the Aegean under the Ptolemies. This prosperity is attested not only by the plentiful coinage of Rhodes, which was largely due to her own energy, but by the issues of such comparatively unimportant mints as Cos, Calymna, Oenoe, Icaria, and Samos. All these islands, and others as well, are admitted to have struck coins of their own during the third century, so why should Chios be made

an exception? Even if no suitable coins were known we ought still to suspect their existence and hope for their discovery. But though the deeds have been forgotten certain monuments remain. There are some bronze coins different from any of those referred to by Head (*Brit. Mus. Cat. Ionia, Chios*, Nos. 41-5) that can be shown very plausibly to have been struck during the period now under consideration. Until a few years ago these coins were very scarce indeed, when a fairly large hoard of them was found in Chios. Unfortunately the hoard was dispersed before any record was made, and I am even unable to say exactly when and where it was brought to light.

The principal varieties of the coins in question are illustrated on **Pl. X. 1-4**, and it will be seen that they reproduce in a larger form the small coins described under type No. 53 [**Pl. XIX. 14-16** of *Num. Chron.*, 1915]. The obverse shows a Sphinx seated to left with or without a bunch of grapes in front of it, and on the reverse an amphora with a magistrate's name to right, and the word **ΧΙΟΣ** to left. There are no magistrates' symbols nor mint marks. The style is good, though clearly later than that of the small coins of type No. 53. The most interesting point about these coins, however, is that a considerable number of them were struck over specimens of type No. 55, mentioned above as probably the last coins issued in the fourth century, and then, in their turn, served as flans for some of the large series with a Sphinx to right. This latter class is usually assigned to the first century B.C., though I shall try to show that it must be dated at least one hundred years earlier; but, whatever its correct period may be, it is clear that these new coins

must come between it and the late fourth-century type No. 55.

It is also practically certain, from the resemblance that they bear to the bronze issues just referred to, that certain silver drachms of Attic weight were also struck at about the same time, although the date now suggested is much earlier than that usually ascribed to them. It is true that Dr. Imhoof-Blumer, in his general reference to the Attic drachms of Chios,⁷⁴ recognized that they must belong to two different periods at least, but he went no farther. Miss Baldwin, on the other hand, in her paper on the *Electrum and Silver Coins of Chios*, referred to above, suggests the last quarter of the fourth century as the probable date for the issue of these early specimens.

Although there is nothing much in the style of the coins to render this attribution unlikely, the rather abrupt change in type that it would imply from the drachms last described—type No. 52—and their Attic standard are, I think, objections to it. Also, as I have endeavoured to show, the political conditions just at that time were against any fresh issues, especially of silver. Then, in spite of the decidedly early look of these few drachms, there are several more issues, not very far removed from them in style, that cannot have appeared before 190 B.C. on account of their almost certain connexion with the Alexandrine tetradrachms then introduced. If these pieces of extra-good style are to be put back as far as Miss Baldwin suggests the interval between them and their successors would be much too long. It is mere guess-work of course, but

⁷⁴ *Griechische Münzen*, p. 654, No. 375, &c.

I should hazard some such date as 250-200 B.C. as the one best calculated to satisfy all the characteristics of the drachms to be described under this period.

The Attic standard was not generally employed in Asia Minor till the second century, but it was gradually creeping into use under the influence of the Lysimachean tetradrachms from the end of the fourth century onwards. There is nothing improbable, then, in supposing that it was introduced at Chios as early as the date now suggested. Sufficient time would have elapsed by then for the old types on silver coins to be forgotten, and for the new issues to be modelled on the contemporary bronze, as was evidently the case. Bronze coins having been struck more or less continuously had, with the assistance of the conservatism so strongly rooted in the Chian mint, preserved their fourth-century types.

Although the silver pieces among the coins now to be described are more carefully executed than the bronze, it is impossible not to acknowledge the strong resemblance between them [Pl. X. 1-9]. Miss Baldwin fully recognizes this (p. 51 of her paper), and I think it unnecessary to labour the point. The only difference of importance between the two metals is that the drachms bear a symbol in the field of the reverse as well as the bunch of grapes on the obverse, while the bronze, as already observed, exhibits no symbols even when the bunch of grapes is omitted. This symbol on the silver coins cannot be the responsible magistrate's signet because the same object appears on coins with different names. It must therefore represent a second official in charge of the mint, whether the eponymous magistrate or another. This is the first time that anything of the sort has been seen on the Chian coinage,

though it is only in keeping with a custom that was becoming general in the Greek world by the middle of the third century B.C. The innovation may have been due solely to the reintroduction of silver, but it seems to strengthen the probability that these drachms succeeded some at least of the bronze coins with which they are now associated.

The following are the bronze and silver coins that I would attribute to this period :

56 a. *Obv.*—Sphinx of rather stunted proportions seated l. on plain exergual line ; wing curled in conventionalized manner similar to type No. 51, &c. ; hair dressed to show chignon, side roll, and loose curls hanging on neck, also like type No. 51 ; only one foreleg showing.

Rev.—Amphora with wide neck and pear-shaped tip, having to r. of it a magistrate's name, and to l. ΧΙΟΣ. Very often a concave field, punch-struck.

Æ. ΑΓΓΕΛΗΣ ↑↑ 17.50 mm. 52.2 grains (3.38 grammes). Athens Cabinet. *J. Int. d'Arch. Num.*, 1913, p. 35. [Pl. X. 1.] Struck over a coin of type No. 55, with ΗΡ/- - Η-- and - - ΟΣ showing on *obv.* and Sphinx on *rev.*

ΕΡΜΩΝΑΞ ↑↑ 17.50 mm. 61.7 grains (4.00 grammes). Athens Cabinet. *J. Int. d'Arch. Num.*, 1913, p. 35.

↑↓ 16.00 mm. 47.9 grains (3.15 grammes). Munich Cabinet. Two other pieces at Athens struck over coins of type No. 55, one with ΑΓΑ-- , and the other with ΟΧ--.

ΗΡΟΔ-- ↑↑ 15.00 mm. 25.9 grains (1.68 grammes). Berlin Cabinet.

ΦΑΝΟΔΙΚΟΣ ↑↑ 17.50 mm. 52.2 grains (3.38 grammes). Athens Cabinet.

↑↑ 16.50 mm. Wt. ? Munich Cabinet.

↑↓ 17.00 mm. 55.0 grains (3.56 grammes). Brit. Mus. Collection, recent acquisition.

ΦΙΑΤΗΣ ↑↑ 18.00 mm. 45.8 grains (2.97 grammes). Athens Cabinet. *J. Int. d'Arch. Num.*, 1913, p. 36.

↑↑ 18.50 mm. 57.9 grains (3.75 grammes). Paris Cabinet, No. 5088. [Pl. X. 2.]

One specimen in private collection at Chios struck over a coin of type No. 55 with [ΙΗ]ΝΩΝ.

One specimen recently acquired by British Museum struck over a coin of type No. 55 with -- ΙΟΞΚΟΥ --

ΦΙΑΩΝ ↑↑ 17.50 mm. Wt. ? Munich Cabinet.

ΧΙΡΩΝ ↑↑ 17.50 mm. 49.4 grains (3.20 grammes). Athens Cabinet. *J. Int. d'Arch. Num.*, 1913, p. 36.

One specimen in Mr. E. T. Newell's collection and two others from Athens struck over coins of type No. 55, one of the latter with -- ΩΝ.

56 β. *Obv.*—Similar to preceding, but large bunch of grapes in front of Sphinx, and the wing somewhat more rounded.

Rev.—Same as preceding, except that amphora has narrower neck and sharp pointed tip.

Æ. ΕΡΜΟΣΤΡΑΤ[ΟΣ] ↑ ? 16.00 mm. Wt. ? From a dealer's stock in Chios.

ΘΕΟΔΟΤΟΣ ↑← 17.50 mm. 59.1 grains (3.83 grammes). Athens Cabinet. *J. Int. d'Arch. Num.*, 1913, p. 36.

↑← 17.50 mm. 70.8 grains (4.59 grammes). My collection.

ΙΣΤΙΑΙΟ[Σ] ↑↓ 17.25 mm. Wt. ? Munich Cabinet. [Pl. X. 3.]

ΚΛΕΙΤΩΝ ↑ ? 15.50 mm. Wt. ? From a dealer's stock in Chios, 1911. This name is also recorded by Kofod Whitte, p. 87, No. 111, ex Mus. Thomsen.

ΦΑΝΟΔΙΚΟ[Σ] ↑ ? 15.50 mm. Wt. ? From a dealer's stock in Chios, 1911.

ΧΙΡΩΝ ↑↓ 17.00 mm. 62.0 grains (4.02 grammes). Vienna Cabinet.

56 γ . *Obv.*—Similar to preceding, except that the bunch of grapes is smaller, and that the Sphinx is in lower relief and of slighter proportions: the breast is also indicated, and the tail bears a tuft.

Rev.—Same as preceding, without incuse circle. Lettering tends to become larger.

$\mathbf{\Lambda E. BATIS}$ $\uparrow\downarrow$ 16.50 mm. 53.8 grains (3.49 grammes). Paris Cabinet, Wadd. 2018.
[Pl. X. 4.]

$\uparrow\downarrow$ 16.25 mm. 61.4 grains (3.98 grammes). My collection, bought in Chios.

$\mathbf{\Theta \Pi \rho \omega \nu}$ $\uparrow\downarrow$ 16.25 mm. 83.8 grains (5.43 grammes). Paris Cabinet, No. 5040.

$\mathbf{\text{KPI}\text{T}\text{O}\text{N}}$ $\uparrow?$ Size? Wt.? In private hands in Chios.

$\mathbf{\Phi \iota \lambda \iota \sigma \tau \eta \varsigma}$ $\uparrow\downarrow$ 17.50 mm. 57.4 grains (3.72 grammes). Athens Cabinet.

$\uparrow\downarrow$ 17.00 mm. 53.8 grains (3.49 grammes). Berlin Cabinet.

-- $\mathbf{\Gamma \iota \kappa \lambda \omicron}$ -- $\uparrow\downarrow$ 17.00 mm. 77.2 grains (5.00 grammes). Athens Cabinet.

$\uparrow?$ 16.00 mm. Wt.? Cabinet of American Num. Soc., Miss Baldwin's fig. 17.

$\alpha, \beta, \text{ or } \gamma.$ $\mathbf{H \Pi \iota \Delta[ANOC]}$ $\uparrow?$ 17.50 mm. 57.1 grains (3.70 grammes). From coin on which Paris Cabinet specimen No. 5032, with Sphinx to r. and $\mathbf{H \rho \omicron \varsigma \text{T} \rho \alpha[\text{TO}\varsigma]}$ *rev.*, was struck.
[Pl. XI. 2.]

57 α . *Obv.*—Sphinx of good style seated l. on plain exergual line; wing curled in conventionalized manner, but feathers indicated by finer lines than in 56 α and β ; hair dressed to show chignon, side roll, and loose curls hanging on neck, only one foreleg showing. The tail bears a tuft, and the breast is indicated. In front bunch of grapes. The whole in very fine dotted border.

Rev.—Amphora similar to type No. 56 γ, having to r. of it a magistrate's name, and to l. ΧΙΟΣ in very neat lettering. In field l. ear of bearded wheat. The whole in very fine dotted border.

R. ΕΟΝΟΜΟΣ ↑? 18.00 mm. 66.0 grains (4.28 grammes). Attic drachm. Metr. Mus., New York, U.S.A., ex Ward Coll., No. 682, G. F. Hill's Cat. [Pl. X. 5.]

ΗΡΙΔΑΝΟΣ ↑↑ 17.25 mm. 56.5 grains (3.66 grammes). Attic drachm. Fitzwilliam Mus., Cambridge, J. R. McClean Coll.

(Probably) - - ΜΟΚΛΗΣ ↑? 16.00 mm. 62.63 grains (4.06 grammes). Attic drachm. Ex Philipson Coll., part of lot No. 2253, Hirsch's Sale Cat., 1909.

57 β. *Obv.*—Similar to preceding, except that Sphinx's wing is more naturalistically drawn, and the breast is not indicated.

Rev.—Same as preceding, except that symbol in field l. is a race-torch, and the border a plain line.

R. ΘΕΟΓΟΜΡΟΣ ↑↑ 17.00 mm. 60.2 grains (3.90 grammes). Attic drachm. Brit. Mus. Coll., No. 56, Cat. Ionia, Chios. Pierced.
[Pl. X. 6.]

↑↑ 19.00 mm. 64.7 grains (4.19 grammes). Attic drachm. Munich Cabinet. In *Griechische Münzen*, No. 390, Dr. Imhoof-Blumer reads the name in this specimen ΘΕΥΓΟΡΡΟΣ.

↑↑ 18.00 mm. 65.3 grains (4.23 grammes). Vienna Cabinet, No. 17923.

57 γ. *Obv.*—Similar to preceding, but no curls on Sphinx's neck, and design in plain line border.

Rev.—Same as preceding, but coarser lettering and no symbol in field.

R. ΗΙΘΕΟΣ ↑↑ 18.00 mm. 61.9 grains (4.01 grammes). Attic drachm. Vienna Cabinet.
[Pl. X. 7.]

58 a. *Obv.*—Sphinx seated l. showing wing and general characteristics of types Nos. 56 γ and 57 a. In front small bunch of grapes.

Rev.—Same as type No. 56 γ .

Æ. ΑΣΜΕΝ[ΟΣ] ↑↑ 11.00 mm. Wt. ? Athens Cabinet. (No grapes on this coin.)

BATI[Σ] ↑← 11.50 mm. 13.1 grains (0.85 gramme). My collection, bought in Chios.
[Pl. X. 8.]

58 β . *Obv.*—Similar to preceding, but of more careless workmanship, and wing shows separate feathers, as in type No. 57 β and γ .

Rev.—Same as preceding.

Æ. ΗΙΘΕΟΣ ↑↑ 10.00 mm. 17.6 grains (1.14 gramme). Berlin Cabinet. [Pl. X. 9.]

ΓΟΣΕΙΔ - - ↑↑ 12.00 mm. 14.8 grains (0.96 gramme). Fitzwilliam Mus., Cambridge, Leake Coll.

No. 56. We are chiefly indebted to the unpublished find mentioned above for our knowledge of this type, although there were a few isolated specimens of it in Paris, Munich, and Vienna before the hoard was uncovered and dispersed. I have had to rely largely on a photograph taken of several of the coins composing the hoard before it was disposed of, for some of my information, which will account for its fragmentary nature in the cases concerned.

As will be seen from the specimens illustrated [Pl. X. 1-4] the type divides itself into three clearly defined sub-groups, and it is a little difficult to determine in what order to arrange them. At first sight one's choice is inclined to fall upon the γ group as the earliest [Pl. X. 4], in spite of the fact that it is only specimens of α [Pl. X. 1-2] that are found struck over coins of type No. 55. The workmanship of the obverse in group γ is neater on the whole than in α and β , and the Sphinx's wing looks more like that

of types Nos. 54 or 55 when the latter are worn. On the other hand, groups α and β , which must be taken together, show more solid links with the previous types than does γ . Group α , at least, still preserves the pear-shaped tip to the amphora [Pl. X. 2], a feature that is very rarely seen after this, and both α and β are frequently found struck on concave flans even when these have not come down from type No. 55. The flans of group γ , however, are always flat on both sides, and more modern looking. Then the wing and other features of the Sphinx in the two earlier groups, although carelessly drawn, come nearer to the previous types in essentials than in the better proportioned obverses of group γ . These points will all be found mentioned in the detailed descriptions above. As far as I have been able to gather no specimens of the third group occurred in the find referred to at the beginning of this section, and although this is not conclusive evidence, it makes it probable that the group I am distinguishing as γ was struck subsequently to the other two.

The lesson taught by the lettering of the coins is also in favour of placing them in the order here suggested. There is a tendency in groups α and β for the Σ to approximate to the open form Ξ , whereas in γ it always appears as Σ , with the upper and lower bars considerably prolonged beyond the middle ones. The same may be said of Ξ . In the first two groups it preserves the Chian fifth- and fourth-century form, in which all three cross-bars are of equal length, but in the last it is rendered thus, Ξ . At Athens this form appeared earlier, as may be seen by comparing Plates iv and v of *Brit. Mus. Cat. Attica*. All the coins illustrated on the

latter are fourth-century issues, but nearly all show this late form of Σ . Otherwise, throughout types Nos. 56-8, M and N are everywhere square, and never assume the splayed forms of the previous centuries. O is still made markedly smaller than the other letters. Π is always Π . Φ no longer takes the peculiar shape noted on the earlier coins. Finally, Ω is generally Ω , and in certain cases Ω .

With regard to the die-positions it will be noticed that group α shows $\uparrow\uparrow$ generally, and $\uparrow\downarrow$ rarely; β shows $\uparrow\downarrow$ and $\uparrow\leftarrow$ in about equal quantities; and γ is invariably arranged $\uparrow\downarrow$.

Beyond the fact that a large number of them are unpublished so far there is nothing particular to remark about the names, since we know nothing of the people who bore them, but there was evidently a predilection at this time for the termination $-\Omega N$. This becomes much rarer during the early part of the next period, and in the late part it disappears entirely.

Bátis is the first genuinely foreign name to be recorded among the Chian magistrates, and $\Phi\lambda\tau\eta\varsigma$, which we have already met with under type No. 53, is unknown as a personal name from any other source than these two series of coins and one of Samos (*Monn. Grecques*, No. 301).

It has been said above that groups α and β must not be separated in trying to arrive at the order in which the coins of this type appeared. Apart from the fact that they were found together, it will be observed that the names $\Phiανόδικος$ and $Χίρων$ (the latter no doubt a variant for $Χείρων$) occur on coins of both sub-types, and make it look as if the issues must have overlapped.

Coins bearing the names Ἑρμόστρατ[ος], Θήρων, Κλείτων, Κρίτων, and Φίλων, I only know from single specimens, and none of the others of this type can be called anything but rare.

Mionnet (*Méd. Gr.*, iii, p. 267, No. 86) mentions a bronze coin measuring 17.00 mm. with a Sphinx to left, and the name ΦΑΝΑ - -. Kofod Whitte does the same (No. 153), evidently copying Mionnet. Without actually dismissing this as a false reading, it seems possible that ΦΑΝΑ - - might be a mistake for ΦΑΝΟΔΙΚΟΣ, since there is a specimen of this issue at Munich in rather bad condition which Mionnet may have seen and misread as ΦΑΝΑ - -. I have personally seen no coin at all answering this description, but as Mionnet's evidence cannot be disproved I am including the name in the list of magistrates belonging to this period in the hope that it may be confirmed some day. The small coin with ΦΑΝΑΓΟ[ΡΗΣ or ΡΑΣ], to be noted later, cannot be taken as indicating the existence of a large piece of the present type with the same name because it belongs to one of the subsequent periods, probably to the beginning of the first century.

The weights of these coins, although irregular, seem to aim at the average attained by the last two types, viz. 61.7 grains (4.00 grammes). I have only met with one instance of a really light coin, the one at Berlin mentioned above with ΗΡΟ/ - -. This is struck on a thin flan, like so many of the succeeding series with the Sphinx to right, but the rest of the flans that I have seen are thick and smooth at the edges. The weights of the corresponding small pieces of type No. 58 bear roughly the same relation to No. 56 as was noted when comparing type No. 53 with Nos. 54-5. They represent,

that is to say, about one-quarter the weight of the larger pieces.

No. 57. The arguments for ascribing these drachms to their present position have been stated above. My impression is that the two first sub-classes of type No. 56 were struck for a time without any silver, and that then No. 56 γ and the earliest of these drachms made their appearance together. Everything about them points to their being contemporaries, especially the forms of the letters used, and it seems possible that the care bestowed on the preparation of the dies for the re-established silver coinage may have reacted on the bronze issues. The die-positions are different, it is true, nearly all the drachms examined showing $\uparrow\uparrow$, while, as remarked above, group γ of the bronze is invariably arranged $\uparrow\downarrow$; but this is not evidence of much importance, especially in different metals.

These drachms are very rare, and I am recording all the specimens known to me, except one with the characteristically Ionic name *Εδνομος* in the collection of Prof. Pozzi of Paris, of which I have not been able to obtain particulars.

The coin from the Philipsen Collection with the name - - ΜΟΚΛΗΣ is doubtful, as it was not illustrated in the catalogue. All the evidence, however, points to its belonging here—weight, module, symbol, and absence of wreath on the reverse. The name *Δημοκλῆς* occurs on the small bronze of the next century.

It will be observed [Pl. X. 5-7] that the style, although undoubtedly good, suffers a steady deterioration, until the coin with *Ἡθεος* from Vienna is very little better than the earliest of the drachms assigned here to the next century. There were very likely

intermediate issues that are lost, but on the whole the development is fairly well represented. The features, apart from style and weight, that especially distinguish the coins of this type from those that follow it, are the finely dotted or plain line circle on both sides, and the smaller module.

The weights are distinctly higher, on the average, than those of the next main group, although one or two specimens of the latter exceed 61.7 grains (4.00 grammes). The seven specimens recorded of the present type, one of which is pierced, average 62.5 grains (4.047 grammes), and four specimens of the type immediately following 64.4 grains (4.17 grammes), while sixty-five specimens, two of which are pierced, of the issues that I am attributing to the latter part of the second century and the opening twelve years of the first average only 56.2 grains (3.64 grammes).

No. 58 includes the few specimens of small-module bronze pieces that may safely be assigned to the present period on account of the names they bear, and of the position and style of the Sphinx. They are divisible into two groups, the former of which [Pl. X. 8] seems to belong to the same issues as sub-types Nos. 56 γ and 57 α , and the latter [Pl. X. 9] to No. 57 γ . No large bronze of this particular type has so far been discovered.

APPENDIX.

List of magistrates' names belonging to coins of Period VIII showing the denominations on which they occur.

	drachms.	large bronze.	small bronze.
Ἀγγέλης	—	α	—
Ἀσμεν[ος]	—	—	α
Βάτις	—	γ	α
Εὔνομος	α	—	—
Ἑρμόστρατ[ος]	—	β	—
Ἑρμάνναξ	—	α	—
Ἡθεῖος	γ	—	β
Ἡριδανός	α	α, β, or γ	—
Ἡρω[δης]	—	α	—
Θεόδωτος	—	β	—
Θεόπομπος	β	—	—
Θήρων	—	γ	—
Ἰστυαῖος	—	β	—
Κλείτων	—	β	—
Κρίτας	—	γ	—
Ποσειδ—	—	—	β
Φανόδικος	—	α and β	—
Φιλίστην	—	γ	—
Φίλην	—	α	—
Φίλων	—	α	—
Χίρων	—	α and β	—
— γκελο—	—	γ	—
— μεκλην	α (?)	—	—
ΦΑΝΑ—	—	(?)	—

The letters α, β, γ indicate the particular class in their respective categories to which the coins belong according to the detailed list given above.

PERIOD IX. 190-88 B.C.

The fairly large issues of Alexandrine tetradrachms that Chios made in common with so many of the Ionian cities after the defeat of Antiochus III by the Romans⁷⁵ are a proof that the island had again become prosperous. This prosperity had no doubt been growing during the previous century, and signs of it have already been noted in the coins attributed to that period in the last section. But Chios suffered a temporary eclipse when, in siding with Rome against Philip V, her capital was twice besieged, and captured at the second attempt.⁷⁶ Her faithfulness to Rome stood her in good stead at the last, for, after the battle of Magnesia, she was recompensed by the Senate with a grant of land.⁷⁷ Though we are not told where this land was it is possible that she now re-entered into possession of Atarneus, which would account to a great extent for her evident increase of wealth throughout the second century.

It is only natural to suppose that drachms and bronze coins must have been struck during this period as well as the tetradrachms. But, principally because no names recorded on the tetradrachms had been observed on any other series or *vice versa*, it has been held that the bulk of the Attic drachms known to us, and the whole of two large series of bronze coins as well, not to speak of the various less important bronze issues, must be assigned to the fifty-four years between

⁷⁵ *Brit. Mus. Cat. Ionia*, Introd., p. xlviii.

⁷⁶ Appian ix. 3; Plutarch, *De Mulierum Virtutibus*, 3.

⁷⁷ Livy xxxviii. 39.

Sulla's decree of autonomy to the Chians and the accession of Augustus.⁷⁸

As a matter of fact there are two names that occur both on the tetradrachms and on the two series that I am suggesting as their contemporaries, but this may well have escaped notice in a compendious work like the *Historia Numorum*. On the other hand there are at least ninety-five different magistrates' names in the three series just referred to, which, although doubtless more fully represented in our museums than any previous Chian issues, can hardly be looked upon as complete. In addition to these there are also some twenty names from small bronze coins that probably do actually belong to the first century B.C. It is evident, therefore, supposing that the responsible magistrate was changed annually, that the series in question cannot all be squeezed into the period 84-30 B.C. And when we consider the circumstances attending the deportation of the islanders by Mithradates, we can scarcely credit the mint with much activity till several years after the population had been restored, which would of course tend to shorten the period still further. We have numerous proofs, besides, of the poverty succeeding the restoration, which helps to increase the probability that considerably less than half of the pre-imperial coinage still to be examined was struck after 84 B.C.

This theory will be found to be supported by the evidence both of style and of epigraphy.

The oligarchical form of government, that seemed

⁷⁸ *Hist. Num.*, ed. 1911, p. 602; and *Brit. Mus. Cat. Ionia, Chios*, Nos. 46-97.

so well suited to the island's needs, had been re-established during the third century, and in its hands Chios enjoyed a full measure of autonomy under the Romans until the Mithradatic wars.

There probably was a slight break in the coinage during the wars with Philip V which would account for the changes we now find both in silver and bronze apart from the introduction of the Alexandrine tetradrachms. The troubles at the end of the third century were such as to make it improbable that the issues of tetradrachms can have begun much before 190 B.C., thus confirming the generally accepted opinion with regard to the date of their introduction. We are also thereby provided with one of our rare fixed chronological points for the Chian series if the suggestion, which I am making below, be accepted as to the particular issues of drachms and bronze coins that we should regard as the contemporaries of the tetradrachms.

The earliest-looking of the still undescribed drachms have a dotted circle on the obverse considerably coarser than on the previous issues [Pl. X. 5-6], and a vine-wreath on the reverse [Pl. XI. 1], which is an innovation on silver coins but recalls the wreath on the fourth-century bronze (types Nos. 54-5). Judging by the surviving specimens it would seem that these drachms were not struck very frequently. One of the two big bronze series hitherto attributed to the period after 84 A.C., in which we see the Sphinx for the first time turned to right on bronze coins⁷⁹ [Pl. XI. 2-5], has,

⁷⁹ A solitary exception to this is to be found in the case of type No. 46^a.

I think, an undoubted right to be included among the early second-century coins as the contemporary of the foregoing drachms. These bronze issues, as already reported, are occasionally found struck over coins of type No. 56, with the Sphinx to left [Pl. XI. 2-3], showing that they not only followed closely after the latter, but that there was a period of scarcity between their dates of issue.

We then find drachms of less careful style than the last [Pl. XI. 7-8] with a formal vine-wreath on the reverse. This wreath differs from the previous one in showing two thyrsus-like knobs at its upper ends, a feature which, after their first appearance, will be seen to be faithfully preserved till the last imperial issues made under Gallienus. With these drachms may be associated a slightly later type of the bronze series with Sphinx to right, and the small issues for which it is impossible to fix a more exact position [Pl. XI. 9-12].

These various coins coincide in my opinion with the Alexandrine tetradrachms. The tetradrachms are usually divided into two groups, Müller's Classes V and VI. It is not easy to say confidently which of the above-mentioned drachms and bronze issues should be allocated to the earlier of these [Pl. X. 10-11] as the coins composing it are distinguished only by monograms, and, though these are plentiful enough, they cannot with certainty be resolved into any of the names furnished by the supposed divisional series. But, judging by their appearance and weight, the two issues represented by Pl. XI. 1 are manifestly earlier than the rest of the drachms now to be considered. And the name on one of them, $\Lambda\epsilon\Omega\text{ME}\Delta\Omega\text{N}$, taken in

conjunction with their similar style and lettering and the prow symbol, connects it unequivocally with the main part of the bronze series with Sphinx to right, and thus provides us with a small though sure foundation upon which to work. These are the coins that I would attribute to the same period as the tetradrachms of Class V.

Then the slightly later drachms mentioned above [PL. XI. 7-8] and the same series of bronze coins [PL. XI. 2-6 and 9-12] in its widest application are probably the contemporaries of the tetradrachms of Müller's Class VI [PL. X. 12-14]. This attribution is supported by the occurrence of the two names, **ΑΛΚΙΜΑΧΟΣ** and **ΓΝΩΣΙΣ**, both on the tetradrachms and on the two series mentioned, the former on one of the drachms and the latter on an issue of the bronze coins.

We finally come to a number of less stable types among the drachms which are not easy to arrange in a satisfactory sequence. The coins illustrated [PL. XI. 13-16] represent the principal varieties that I have observed. They are characterized by their rougher style, later forms of lettering, and, with a few exceptions like Nos. 13 and 15 on the plate, by the less formal type of vine-wreath on their reverses. These coins are all evidently later than those mentioned above, but yet so near to them in style that it seems fair to suggest that they coincided with the period that followed the disappearance of the tetradrachms, *circa* 133 B.C.⁸⁰ The bronze coins that appear to have been struck at the same time as these drachms are of

⁸⁰ *Brit. Mus. Cat. Ionia*, Introd., pp. xlviii-li.

quite a new type [Pl. XI. 17-20], but their style and lettering and the names that they bear in common all point to these two series having been contemporaries. The flans of the new bronze issues are both smaller and thicker than their predecessors, and the Sphinx, generally though not always turned to right, is seated on various objects such as a club and winged caduceus combined, or a serpent-staff, which seem to stand for the symbols in the field of the previous bronze series. The Sphinx also has one forepaw raised in many instances, as in the little symbol on the later tetradrachms, and on one of the drachms [Pl. XI. 13] which thus forms a link between this sub-period and the last.

The inauguration of the Roman province of Asia in 133 B.C. was the opening of a new era for most of the Ionic cities, and was signalized there by the issue of "cistophori". These coins do not seem to have been struck at Chios, which supports the contention, arrived at independently, that the island was not included in the province. The appearance of the drachms just referred to shows that the continuity of her silver issues at least was maintained at Chios for some time after those that can safely be connected with the Alexandrine tetradrachms. This continuity affords still further confirmation of the absence of any interference with purely local affairs on the part of Rome during the second century, and there is consequently ample justification for not postulating any fresh period in the numismatic history of Chios till after the Mithradatic wars.

On the other hand the attribution of the new bronze series to this particular date is in the nature of a

conjecture, but in view of the reasons given above the arrangement seems on the whole to give more satisfaction than any other. Why there should have been such a radical change in the bronze types, while the silver ones remained practically unchanged, is a question that I cannot answer. It is a point that perhaps permits of a solution, but for the present I am unable to suggest one.

Among the large and miscellaneous collection of coins found at Delos during the excavations of 1906-8, most of which belonged to the period subsequent to 167 B.C., when Delos was declared an open market and handed over to Athens by the Romans, there was a certain quantity of Chian bronze pieces. These are all recorded by Svoronos in *Journ. Int. d'Arch. Num.*, 1911, p. 77 and ff., and it will be seen that they include nothing earlier than the coins of this type. I am noting the fact that certain specimens were found in Delos under their magistrates' names.

From this time onwards no event of any importance took place till the revolt of the Greek cities against Rome in sympathy with Mithradates. Chios once more seems to have proved true to her allegiance, and to have resisted all temptation to join the revolt. Nothing else will explain the violence of Mithradates' revenge. Saying that he had the right to put all the inhabitants to death, he levied a fine on the island of 2,000 talents, and sent a general called Zenobius to collect it. Partly by taking their jewels from the women and the ornaments from the temples the people managed to pay the sum required. But on a plea that he was being given short weight, though probably in accordance with a prearranged plan, Zenobius carried

off the whole population into Pontus under circumstances of great cruelty.⁸¹

Thus for the second time in her history was the island depopulated, and although, as in the days of Darius, the exile did not last long, it was to a sadly impoverished state that the inhabitants returned.

In effect it was to bring out the loss of prosperity caused by the policy of Mithradates as strongly as possible that I have dwelt rather long on this incident. There can be no doubt that the general condition of the island previous to 88 B.C. was entirely different from what it was when the Chians were once more reinstated in their homes. This took place four years later, in 84 B.C., owing to one of the conditions laid down by Sulla in his treaty with Mithradates, and through the kind offices of the citizens of Heraclea Pontica.⁸²

The first of the second-century coins to be examined are the Alexandrine tetradrachms. I do not propose to publish all that I have recorded of the coins with monograms, partly because my lists are by no means complete, and partly because I have despaired of resolving any of the monograms into an intelligible form with certainty. I shall content myself with indicating the principal varieties of these coins, and shall then give all the names that I have been able to collect from the later group.

The various types of Alexandrine tetradrachms bearing the Sphinx symbol are as follows:

⁸¹ Appian, *De Bello Mithridatico*, 46 and 47.

⁸² Appian, *loc. cit.*, 55 and 61; and Memnon from Didot's *F.H.G.*, iii, p. 543.

59 a. *Obv.*—Head of young Heracles to r. wearing lion's skin head-dress. High relief. No border.

Rev.—(Müller's Class V.) ΑΛΕΞΑΝΔΡΟΥ in field r. Zeus, nude to waist, seated l. on throne with high back, the right foot drawn back behind left, and both generally resting on footstool: in his outstretched right hand he holds eagle facing right, and in his left sceptre. The legs of the throne, of which only two are seen, sometimes consist in part of their length of little Sphinxes facing outwards. Between legs of throne is a single letter or monogram, and in front of Zeus's knee a monogram (in a few instances a single letter). Above this is a Sphinx with curled wing seated l. or r., generally on a plain line. Plain exergual line.

A. Size about 30.00 mm. Wt. 260-254 grains (16.85-16.46 grammes). Attic tetradrachm.

Below throne Γ, in field l. Ε, and above Sphinx to l. Berlin Cabinet. [Pl. X. 10.]

Below throne Φ, in field l. Ξ, and above Sphinx to r. Brit. Mus. [Pl. X. 11.]


Below throne nothing, in field l. Κ, and above Sphinx to l. resting its forepaw on club, handle upwards. Brit. Mus. (This coin is in lower relief than the preceding, and intermediate between Müller's Classes V and VI.)



59 β. *Obv.*—Similar, but of more careless style, and in lower relief. Border of dots.


Rev.—(Müller's Class VI.) As preceding, but no exergual line, and monogram in field l. immediately below the outstretched hand of Zeus. In front of footstool Sphinx with curled wing seated r. or l. and raising further forepaw. No letter under throne, with one exception.


A. Size about 32.00 mm. Wt. 260-254 grains (16.58-16.46 grammes). Attic tetradrachm.

In field l. ΧΕ and below Sphinx to r. Brit. Mus. [Pl. X. 12.]



In field 1.  and below Sphinx to l. Berlin Cabinet.

In field 1.  and below Sphinx to l., under throne  Brit. Mus.

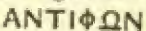

In field 1.  and below Sphinx to l. on amphora lying on its side, and raising its further forepaw over a bunch of grapes. Vienna Cabinet.

In field 1.  and below Sphinx to l. on amphora lying on its side, but no grapes. My collection.

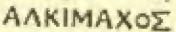
60. *Obv.*—Same as preceding.

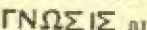

Rev.—(Müller's Class VI.) As preceding, but style, if anything, more careless, and throne has no back. There is also no footstool. Sometimes letters in field 1.  or . Opposite left foot of Zeus Sphinx with curled wing seated l. on amphora, lying on its side with mouth to l., and, with one exception, raising its further forepaw. No grapes. Plain exergual line beneath which magistrate's name written in full.

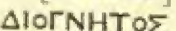
R. Size about 32.00 mm. Wt. 260-254 grains (16.85-16.46 grammes). Attic tetradrachm.


In exergue  and in field 1. . Brit. Mus. and Hunterian Coll.



(This issue is the only one I have observed in which some of the details of the reverse are the same as those of the last type. The throne has a back, its legs consist partly of Sphinxes, and there is a footstool. There is also no exergual line.)

In exergue  Coll. E. T. Newell.

In exergue  and in field 1. . Berlin Cabinet. [Pl. X. 14.]

In exergue  Brit. Mus.

In exergue  Brit. Mus. and Berlin Cabinet.

In exergue  and in field 1. . Berlin Cabinet.

In exergue ΖΗΝΟΔΟΤΟΣ and in field 1. ΑΡ. Brit. Mus.

(In this specimen the Sphinx, while seated on an amphora like the rest, does not raise its forepaw.)

In exergue ΗΡΑΚΛΕΙΤΟΣ Brit. Mus. and Coll. E. T. Newell.

In exergue ΚΡΑΤΩΝ and in field 1. ΠΟ. Brit. Mus. and Hunterian Coll.

In exergue ΛΑΣΩΝ and in field 1. ΑΡ. Brit. Mus.

(No dotted border on obverse.)

In exergue ΜΕΝΕΚΡΑΤΗΣ Vienna Cab. and Hunterian Coll., No. 133. [Pl. X. 13.]

In exergue ΞΕΝΩΝ and in field 1. ΠΟ (?). Berlin Cabinet.

In exergue ΞΟΥΘΟΣ and in field 1. ΠΟ. Brit. Mus. and Berlin Cabinet.

In exergue ΟΙΝΟΠΙ[Δ]ΗΣ Copenhagen, Müller's No. 1113.

In exergue ΤΙΜΟΔΑΜΑΣ Brit. Mus.

In exergue ΤΙΜΩΝ Mionnet's No. 177.

In exergue ΦΙΛΙΠΠΟΣ and in field 1. ΠΟ. Berlin Cabinet.

In exergue ΧΑΡΗΣ Berlin Cabinet.

The drachms that I would attribute to the early portion of this period are the following :

61. *Obv.*—Sphinx of good late style seated l. on plain exergual line; wing curled in naturalistic manner like type No. 57 β; hair rolled and no curls on neck; only one foreleg showing. The tail bears a tuft, breast not indicated. Before Sphinx bunch of grapes. Border of dots.

Rev.—Amphora with wide neck and pointed tip between magistrate's name r. and ΧΙΟΣ l., sometimes symbol also l. The whole in vine-wreath tied below showing leaves and tendrils. Slightly concave field.

AR. ΑΓΓΕΛΙΣΚΟΣ *Rev.* No symbol.

↑↑ 20.00 mm. 64.5 grains (4.18 grammes).
Attic drachm. Athens Cabinet. Published
J. Int. d'Arch. Num., 1909-10, p. 44.

ΛΕΩΜΕΔΩΝ *Rev.* Prow in field l.

↑ 22.50 mm. 63.6 grains (4.12 grammes). Attic
drachm. Metr. Mus., New York, U.S.A., ex
J. Ward's Coll., No. 631, G. F. Hill's Cat.
[Pl. XI. 1.]

↑ 19.00 mm. 65.0 grains (4.21 grammes).
Attic drachm. Ex Philipson Coll., No. 2252,
Hirsch's Sale Cat., 1909. (Same dies as
preceding.)

↑ 21.50 mm. 64.5 grains (4.18 grammes).
Attic drachm. R. Jameson's Coll., No. 1523
of his Cat., 1913. This specimen also has a
bunch of grapes with stalk to l. under vine-
wreath on *rev.*

The following are the coins composing the former
of the two main bronze series attributed to this period :

62 a. *Obv.*—Same as preceding, except that Sphinx is seated
r. and that the symbol in front of it is varied.
There is also no border around type.

Rev.—Amphora with wide neck and pointed tip, though
in some instances the pear-shaped tip of previous
issues is seen, with magistrate's name r. and
ΧΙΟΣ l. A symbol generally in field l., some-
times both l. and r. Frequently concave field.

Æ. ↑↑ 19.00-16.00 mm. 77.9-54.0 grains (5.05-3.50
grammes). Fourteen pieces examined, of
which four countermarked tripod.

ΑΡΓΕΙΟΣ *Obv.* Ear of corn. *Rev.* Bunch of
grapes l. Paris Cab., No. 5013.

[Pl. XI. 2.]

Coins with this name are sometimes found
struck over previous series with Sphinx
to l.

↑↑ 18.00-16.00 mm. 75.3-60.0 grains (4.88-3.89
grammes). Twelve pieces examined, of
which three countermarked tripod.

ΑΡΙΣΤΟΜ[ΑΧΟΣ?] *Obv.* 8-rayed star, sometimes enclosed in circle. *Rev.* Prow to r. on l.

↑↑ 20.00-17.00 mm. 50.9-40.6 grains (3.30-2.63 grammes). Ten pieces examined, of which three countermarked tripod.

ΑΣΓΑΣΙΟΣ *Obv.* Bunch of grapes. *Rev.* Ear of corn l. and star r. Paris Cab. [Pl. XI. 5.] *Obv.* Bunch of grapes and star. *Rev.* Ear of corn l. Solitary specimen in library at Chios. *Obv.* Bunch of grapes. *Rev.* Ear of corn l.

↑↑ 17.50-16.50 mm. 65.1-57.1 grains (4.22-3.70 grammes). Twelve pieces examined, of which three countermarked tripod.

ΓΝΩΣΙΣ *Obv.* 8-rayed star. *Rev.* Caduceus l.

↑↑ 19.00-17.00 mm. 60.8 grains (3.94 grammes). Six pieces examined, of which three countermarked tripod.

ΔΗΜΗΤΡΙΟΣ *Obv.* Bunch of grapes. *Rev.* Ear of corn l. *Obv.* No symbol. *Rev.* Ear of corn l.

(1 spec. ↑↓) ↑↑ 19.75-17.00 mm. 67.9-40.1 grains (4.40-2.60 grammes). Thirteen pieces examined, of which four countermarked tripod.

ΗΓΕΜΩΝ *Obv.* Ear of corn. *Rev.* Bunch of grapes l.

(1 spec. ↑↓) ↑↑ 19.75-17.00 mm. 67.4-39.4 grains (4.37-2.55 grammes). Sixteen pieces examined, of which three countermarked tripod.

ΗΡΟΣΤΡΑ[ΤΟΣ] *Obv.* Ear of corn. *Rev.* Bunch of grapes l. Paris Cab., No. 5032. [Pl. XI. 3.]

Coins with this name are sometimes found struck over previous series with Sphinx to l. (See type No. 56 γ with **ΗΡΙΑΔΑΝΟΣ**.)

↑↑ 22.00-17.00 mm. 58.8-47.1 grains (3.81-3.05 grammes). Thirteen pieces examined, of which six countermarked tripod.

ΘΕΡΣΗΣ *Obv.* Ear of corn. *Rev.* Bunch of grapes l.

Coins with this name are sometimes found struck over previous series with Sphinx to l.

↑↑ 20.25-17.50 mm. 60.0-45.1 grains (3.89-2.92 grammes). Seventeen pieces examined, of which seven countermarked tripod.

ΙΚΕΣΙΟΣ *Obv.* Ear of corn. *Rev.* Bunch of grapes l.

One specimen with this name. No. 5042, at Paris, possibly struck over coin of previous series with Sphinx to l.

↑↑ 18.75-16.50 mm. 68.8-45.4 grains (4.46-2.94 grammes). Eighteen pieces examined, of which seven countermarked tripod.

ΚΗΦΙΣΙΔΗ[Σ] *Obv.* Bunch of grapes. *Rev.* Race-torch l. Paris Cab. [Pl. XI. 4.]
Obv. Bunch of grapes. *Rev.* Race-torch l. and wing r. *Obv.* No symbol. *Rev.* Ear of corn l.

↑↑ 18.00-16.00 mm. 84.0-48.0 grains (5.44-3.11 grammes). Nineteen pieces examined, of which five countermarked tripod.

ΚΥΛΛΑΝΟΣ *Obv.* Bunch of grapes. *Rev.* Race-torch l. *Obv.* Bunch of grapes. *Rev.* Race-torch l. and wing r. *Obv.* 8-rayed star. *Rev.* Prow to l. on l.

↑↑ 19.00-16.00 mm. 71.9-45.5 grains (4.66-2.95 grammes). Eighteen pieces examined, of which six countermarked tripod.

ΛΑΜΠΡΟΣ *Obv.* Bunch of grapes. *Rev.* Race-torch l. *Obv.* Bunch of grapes. *Rev.* Race-torch l. and wing r. *Obv.* Race-torch. *Rev.* No symbol. Solitary specimen at Vienna.

↑↑ 20.00-17.00 mm. 80.1-44.0 grains (5.19-2.85 grammes). Twenty pieces examined, of which one countermarked tripod, at Paris.

ΛΕΩΜΕΔΩ[N] *Obv.* Ear of corn. *Rev.* No symbol. *Obv.* Bunch of grapes. *Rev.* Ear of corn l. *Obv.* Bunch of grapes. *Rev.* Ear of corn l. and 8-rayed star r. *Obv.* No symbol. *Rev.* Ear of corn.

↑↑ 19.00-16.00 mm. 60.5-5.89 grains (3.92-3.82 grammes). Ten pieces examined, of which three countermarked tripod.

ΡΟΛΙΑΝΘΟΣ *Obv.* Ear of corn. *Rev.* No symbol.

↑↑ and ↑↓ 18.00-16.00 mm. 56.00 grains (3.63 grammes). Eleven pieces examined, of which three countermarked tripod.

ΣΤΑΦΥΛΟ[Σ] *Obv.* 8-rayed star. *Rev.* Prow to l. on l., and on one specimen at Paris prow downwards l.

↑↑ 19.00-16.00 mm. 59.1-52.0 grains (3.83-3.37 grammes). Ten pieces examined, of which one countermarked tripod, at Berlin.

ΤΗΛΕΜΑΧ[ΟΣ] *Obv.* 8-rayed star. *Rev.* Caduceus l.

↑↑ 19.00-17.00 mm. 73.0 grains (4.73 grammes). Nine pieces examined, of which one countermarked tripod, at Copenhagen.

ΤΙΜΑΝΔΡΟΣ *Obv.* Bunch of grapes. *Rev.* Ear of corn l. *Obv.* Bunch of grapes. *Rev.* Ear of corn l. and star r.

↑↑ 17.25-15.50 mm. 56.0-45.1 grains (3.63-2.92 grammes). Ten pieces examined, of which two countermarked tripod.

ΤΙΜΟΚΛΗ[Σ] *Obv.* 8-rayed star. *Rev.* Caduceus l. *Obv.* 8-rayed star. *Rev.* No symbol.

↑↑ 19.00-16.25 mm. 61.1-49.4 grains (3.96-3.20 grammes). Nine pieces examined, of which three countermarked tripod.

ΦΟΙΝΙΞ *Obv.* Ear of corn. *Rev.* No symbol.

62 β. *Obv.*—Similar to last, except that Sphinx is of less pleasing style, shows curls hanging on neck in addition to the rolled head-dress, and has the wing feathers less freely treated. The human breast is also more clearly defined. Before Sphinx club, handle upwards, and between its legs, generally, the letter Π; rarely, Ε and Ι.

Rev.—Similar to last, except that amphora generally has curved handles and thin neck, and sometimes shows the 'lip' characteristic of later issues. In field l. rudder, blade upwards. Frequently concave field.

Æ. ↑↑ 19.00–16.00 mm. 55.1–41.7 grains (3.57–2.70 grammes). Seventeen pieces examined, of which five countermarked tripod.

ΚΑΥΚΑΣΙΩΝ *Obv.* one specimen without Γ at Paris. *Rev.* one specimen with torch in place of rudder recorded by Kofod Whitte ex Cat. d'Ennery, No. 270.

↑↑ 19.00–16.50 mm. 80.1–52.9 grains (5.19–3.43 grammes). Seventeen pieces examined, of which five countermarked tripod.

ΜΕΝΕΣΘΕΥ[Σ] *Obv.* Both with and without Γ, sometimes retrograde, as in Hunterian Coll., No. 44. [Pl. XI. 10.] One specimen at Paris has I between feet of Sphinx, and Kofod Whitte records Ε as well. *Rev.* The ear of corn symbol in place of rudder is said by K. Whitte to occur on a specimen in Mus. Knobelad. (Sestini).

↑↑ 19.00–17.00 mm. 65.1–56.0 grains (4.22–3.63 grammes). Thirteen pieces examined, of which five countermarked tripod.

ΣΩΣΤΡΑΤ[ΟΣ] *Obv.* Both with and without Γ. *Rev.* Rudder. [Pl. XI. 9.] *Obv.* Bunch of grapes. *Rev.* Race-torch. Solitary specimen at Athens.

The drachms that may have preceded or accompanied the last sub-type are the following:

63 a. *Obv.*—Sphinx of inferior style seated l. on plain exergual line; wing curled in naturalistic manner, but less freely treated than in type No. 61; hair rolled without curls on neck; only one foreleg showing. The tail bears a tuft, and the breast is indicated. Before Sphinx bunch of grapes. Border of dots.

Rev.—Amphora with wide neck, pointed tip, and sloping shoulders, between magistrate's name l. or r. and $\chi\iota\omicron\sigma$ r. or l. Sometimes symbol in field l. The whole in vine-wreath tied below, of more formal design than in type No. 61, showing only leaves, and terminating above in two thyrsus-like knobs. Slightly concave field in most specimens.

Ar. $\uparrow\uparrow$ 17.00 mm. 57.4 grains (3.72 grammes). Attic drachm. Leake Coll., Fitzwilliam Mus., Cambridge.

$\Delta\Lambda\text{KIMAXO}\Sigma$ r. of amphora. No symbol on reverse. [Pl. XI. 8.]

$\uparrow\uparrow$ 21.00 mm. 56.2 grains (3.64 grammes). Attic drachm. Paris Cabinet, No. 4999.

$\Delta\Omega\rho\omicron\Theta\epsilon\omicron\Sigma$ l. of amphora. Trident, prongs upwards, in field l.

$\uparrow\uparrow$ 20.50 mm. 61.6 grains (3.99 grammes). Attic drachm. Paris Cabinet, Waddington, 2012.

$\epsilon\sigma\tau\iota\alpha\iota\omicron\Sigma$ r. of amphora. Prow to r. in field l.

$\uparrow\uparrow$ 19.75 mm. 60.5 grains (3.92 grammes). Attic drachm. Paris Cabinet, No. 5005.

$\text{IHN}\Omega\text{N}$ No grapes *obv.*, name r. of amphora. Club (?), handle upwards, in field l.
[Pl. XI. 7.]

63 β .—Similar to preceding, but type to r.

Ar. $\uparrow\uparrow$ 19.50 mm. 56.6 grains (3.67 grammes). Attic drachm. Paris Cabinet, No. 5007.

$\uparrow\uparrow$ 18.00 mm. 59.3 grains (3.84 grammes). Attic drachm. Brit. Mus. Cat. Ionia, Chios, No. 52.

Name illegible, r. of amphora. Cantharus in field l. (both coins from same dies).

The bronze coins of small module that I would attribute to the same period as types Nos. 59 α –63 β are the following:

64. *Obv.*—Sphinx seated l., but identical in all other respects with the best executed pieces of type No. 62 a.

Rev.—Amphora as in type No. 62 a between magistrate's name r. and $\chi\iota\sigma$ l. Concave field.

Æ. ↑↑ 14.00 mm. Wt. ? Collection in Public Library, Chios.

ΕΡΜΩΝΑ[Ξ] No symbol either side.

↑↑ 13.00 mm. Wt. ? Collection of Sir H. Weber. [Pl. XI. 6.]

[Λ]ΕΩΜΕΔ[ΩΝ] Ear of corn in field l. of rev. Concave field.

65. *Obv.*—Sphinx seated r. on plain exergual line, in all respects like the larger pieces of type No. 62 a. In front, sometimes, bunch of grapes.

Rev.—Amphora of type No. 62 a between magistrate's name r. and $\chi\iota\sigma$ l. In field l., sometimes, bunch of grapes.

Æ. ↑↑ 11.00 mm. Wt. ? In private collection at Chios.

ΑΠΟΛΛ[ΩΝΙΔΗΣ] Bunch of grapes in field l. of rev.

↑↑ 10.00 mm. Wt. ? In private collection at Chios.

ΑΡΙΣΤ[ΟΜΑΧΟΣ] No symbol either side.

↑↑ 11.50 mm. 11.4 grains (0.74 gramme). My collection. [Pl. XI. 12.]

↑↑ 10.00 mm. 13.4 grains (0.87 gramme). Berlin Cabinet.

ΕΡΜΩΝ[ΑΞ] Bunch of grapes on *obv.*

↑↑ 10.00 mm. 11.9 grains (0.77 gramme). Brit. Mus. Cat. Ionia, Chios, No. 98. [Pl. XI. 11.]

↑↑ 11.00 mm. 16.8 grains (1.09 gramme). Berlin Cabinet.

ΘΕΟΔΩ[ΡΟΣ] Bunch of grapes in field l. of rev.

↑↑ 10.25 mm. 9.1 grains (0.59 gramme). My collection.

↑↓ 9.75 mm. 9.95 grains (0.645 gramme). My collection.

ΛΥΣΙΚΡ[ΑΘΗΣ] No symbol either side in (1), bunch of grapes in field l. of *rev.* in (2).

↑↑ 11.00 mm. 13.4 grains (0.87 gramme). Athens Cabinet.

↑↑ 10.00 mm. 16.5 grains (1.07 grammes). Berlin Cabinet.

ΣΚΥΜ[ΝΟΣ] Bunch of grapes on *obv.*

↑↑ 10.00 mm. 14.6 grains (0.93 gramme). My collection.

↑↑ 11.00 mm. 17.4 grains (1.13 grammes). Brit. Mus. Cat. Ionia, Chios, No. 99.

ΣΤΑΦΥ[ΛΟΣ] Bunch of grapes on *obv.*

↑↑ 11.00 mm. 10.2 grains (0.66 gramme). Athens Cabinet.

[Τ]ΙΜΑΝΔΡ[ΟΣ] Bunch of grapes in field l. of *rev.*

↑↓ 9.75 mm. 10.8 grains (0.70 gramme). Paris Cabinet, No. 5112.

[Φ]ΑΙΝΟ - - No symbol visible either side.

The next group of drachms, referred to above as possibly coinciding with the period 133-88 B.C., is the following:

66 a. *Obv.*—Sphinx seated l. as in type No. 63 a, but holding up bunch of grapes in further forepaw.

Rev.—Long thin amphora in formal vine-wreath, like that of type No. 63 a, with ΑΝΔΡΩΝΑΣ r. and ΧΙΟΣ l. but no symbol.

R. ↑? 19.50 mm. 57.3 grains (3.71 grammes). Attic drachm. Paris Cabinet, No. 4993.

[Pl. XI. 13.]

66 β. *Obv.*—Sphinx of similar but ruder style seated l. on plain exergual line. In front bunch of grapes. No dotted border.

Rev.—Amphora of varying design between magistrate's name ρ . or λ . and $\chi\iota\omicron\sigma$ λ . or ρ . Sometimes symbol in field. The whole in vine-wreath tied below and terminating above in two thyraus-like knobs, but of more florid design than in types Nos. 63 a and 66 a.

\mathcal{R} . $\uparrow\uparrow$ 21.00 mm. 56.3 grains (3.65 grammes). Attic drachm. Berlin Cabinet.

$\uparrow?$ 19.00 mm. 55.4 grains (3.59 grammes). Attic drachm. Roussopoulos Coll., No. 3285, Hirsch's Sale Cat. XIII.

ΑΠΕΛΛΑΣ ρ . of amphora. No symbol. The Berlin specimen is countermarked on reverse with draped and helmeted bust of Athena to ρ .

$\uparrow\uparrow$ 18.00 mm. 51.7 grains (3.35 grammes). Attic drachm. Brit. Mus. Cat. Ionia, Chios, No. 46.

$\uparrow\uparrow$ 18.50 mm. 62.5 grains (4.05 grammes). Attic drachm. Paris Cabinet, No. 4995.

$\uparrow\uparrow$ 18.75 mm. 50.3 grains (3.26 grammes). Attic drachm. Munich Cabinet.

ΑΡΓΕΙΟΣ λ . of amphora in (1), and ρ . in (2) and (3). No symbol.

(One spec. $\uparrow\downarrow$) $\uparrow\uparrow$ 20.50–17.00 mm. 61.8–58.0 grains (4.01–3.76 grammes). Attic drachms. Brit. Mus. Cat. Ionia, Chios, Nos. 47–8, Vienna Cabinet, and my collection.

ΑΡΤΕΜΙΔΩΡ
 Σ ρ . of amphora. Thyrsus adorned with fillets in field λ . (This issue has a dotted border on *obv.* unlike the rest of the group.)

$\uparrow\uparrow$ 18.00 mm. 59.9 grains (3.88 grammes). Attic drachm. Paris Cabinet (not numbered).

$\uparrow\uparrow$ 19.25 mm. 48.5 grains (2.82 grammes). \mathcal{A} . Copper core of ancient forgery. My collection.

ΕΡΜΟΦΑΝΤΟΣ λ . of amphora in (1), and ρ . in (2). In both aplustre in field λ .

↑↑ 19.00-18.00 mm. 54.6-50.0 grains (3.54-3.24 grammes). Attic drachms. Paris Cabinet, No. 4996, pierced. [PL XI. 16.] Brit. Mus. Cat. Ionia, Chios, No. 49, and Berlin Cabinet.

↑↑ 19.00-18.00 mm. 61.0-53.4 grains (3.95-3.46 grammes). Paris Cabinet, Nos. 5000-1, Hunterian Coll., No. 6, and Berlin Cabinet.

ZH NIS l. of amphora with lip. In space between letters eagle stands to r. on amphora in (1), and caps of Dioscuri with dots above them representing stars in (2). (The corn-grain noted by Brit. Mus. Cat., No. 49, in field r. of reverse, is a bunch of grapes which figures as part of the wreath in all issues with this name.)

↑↑ 20.00 mm. 55.3 grains (3.58 grammes). Attic drachm. Brit. Mus. Cat. Ionia, Chios, No. 51.

HAIOΔΩΡΟΣ r. of amphora. One-handled vase in field l.

↑↑ 20.75 mm. 57.1 grains (3.70 grammes). Attic drachm. Paris Cabinet, Waddington, No. 2014. [PL XI. 14.]

↑↑ 18.50 mm. 59.0 grains (3.82 grammes). Attic drachm. Berlin Cabinet.

MHTΑΣ r. of amphora. 8-rayed star in field l. between **ΧΙ** and **ΟΣ**. (Obverse die of (1) same as the two coins described above with name **ΕΡΜΟΦΑΝΤΟΣ**.)

66 ββ. *Obv.*—Same type to r. No border.

Rev.—Amphora of type shown in PL XI. 16, in wreath like PL XI. 14, with **ΘΕΥΜΝΙΣ** r. and **ΧΙ ΟΣ** l. In space between letters of latter full-length figure of Dionysus (?) facing, holding staff in l. and bunch of grapes in r.

AR. ↑↑ 21.00 mm. 56.6 grains (3.67 grammes). Attic drachm. Berlin Cabinet, first published in *Hermes* vii. 50.

66 γ. *Obv.*—Sphinx of late style seated l. on plain exergual line; wing conventionally twisted into a tight curl; hair gathered into knot behind with a long curl hanging on neck; human breast clearly defined, and tail bears a tuft. Before Sphinx bunch of grapes. Border of coarse dots.

Rev.—Long thin amphora with pointed tip between magistrate's name r. and $\chi\iota\ \omicron\ \Sigma$ l. In field l., generally, a symbol. Border of coarse dots.

Α. ↑↑ 21.00 mm. 61.4 grains (3.98 grammes). Attic drachm. Paris Cabinet, No. 4994.

[Pl. XI. 15.]

↑↑ 19.50 mm. 57.5 grains (3.79 grammes). Attic drachm. Munich Cabinet.

↑↑ 19.50 mm. 49.5 grains (3.21 grammes). Attic drachm. McClean Coll., Fitzwilliam Mus., Cambridge.

ΑΠΕΛΛΗΣ r. of amphora; winged caduceus in field l. in (1) and (2). Name l. of amphora; winged caduceus in field r. in (3).

Generally ↑↑, but three specimens have ↑←—18.00–21.50 mm. 61.9–49.4 grains (4.01–3.20 grammes). Attic drachms. Brit. Mus. Cat. Ionia, Chios, Nos. 54–5, &c.

ΔΕΡΚΥΛΟΣ r. of amphora. Cornucopiae in field l.

↑? 18.00 mm. 54.0 grains (3.50 grammes). Attic drachm. Coll. Imhoof-Blumer, published *Rev. Suisse*, 1895, p. 239.

↑? 19.50 mm. 55.4 grains (3.59 grammes). Attic drachm. Coll. B. Yakountchikoff.

↑↑ 19.00 mm. 56.3 grains (3.65 grammes). Attic drachm. Berlin Cabinet.

ΚΟΡΩΝΟΣ r. of amphora. No symbol. (These coins have the later type of amphora seen on Pl. XI. 16. In No. 1 only the Sphinx wears a *modius*, and the Ω is as rendered above; but Nos. 2 and 3, and one other in Mr. E. T. Newell's Coll., show the earlier form.)

↑↑ 19.00 mm. 55.1 grains (3.57 grammes). Attic drachm. Berlin Cabinet.

MENEKΛHΣ r. of amphora. Two 8-rayed stars also in field r.

↑↑ 18.50 mm. 57.3 grains (3.71 grammes). Attic drachm. McClean Coll., Fitzwilliam Mus., Cambridge.

↑↑ 18.50 mm. 47.8 grains (3.10 grammes). Attic drachm. Paris Cabinet, No. 5004.

↑↑ 19.00 mm. 56.0 grains (3.63 grammes). Attic drachm. Hunterian Coll., No. 8.

ΜΗΤΡΟΔΩ
ΡΟΣ r. of amphora. Aplustre in field

l. of *rev.* and prow to l. in field l. of *obv.* beneath the bunch of grapes. (Nos. 1 and 2 have the magistrate's name written

ΜΗΤΡΟΔΩ . . . as well as another specimen at Berlin. Only in the Glasgow specimen does the name appear as above. These coins also have the later type of amphora as described under **ΚΟΡΩΝΟΣ**.)

↑↑ 19.00 mm. 54.0 grains (3.50 grammes). Attic drachm. Berlin Cabinet. Published *Griech. Münzen*, No. 393.

ΣΤΑΦΥΛΟΣ r. of amphora. Winged caduceus in field l. (The later type of amphora appears in this issue as well.)

66 & *Obv.*—Same as preceding, though of somewhat ruder style. Border of dots.

Rev.—Amphora of varying design between magistrate's name r. and **ΧΙΟΣ** l. In field l. symbol. The whole in vine-wreath tied below.

R. ↑↑ 19.00 mm. 54.5 grains (3.53 grammes). Attic drachm. Berlin Cab. Published *Griech. Münzen*, No. 388.

ΓΟΡΓΙΑΣ l. of amphora, which has the form shown on Pl. XI 16, and, as in that case, the symbol here is an eagle seated to r. upon the amphora.

↑↑ 18.00 mm. 57.3 grains (3.71 grammes). Attic drachm. Brit. Mus. Cat. Ionia, Chios, No. 50.

ZHNOΔΩΡΟΣ r. of amphora, which has the form shown on Pl. XI. 15, and the symbol is a palm-leaf, stem upwards. The wreath is of an unusual form for this group, the upper ends terminating in vine-leaves.

The bronze coins that I regard as contemporaries of the drachms just described are the following:

67. *Obv.*—Sphinx of late style seated r. (rarely l.) on exergual line of varying form: hair-dressing and wing like the drachms of type No. 66 γ. Before Sphinx bunch of grapes, which is generally held in its further forepaw. Sometimes border of dots, and, when exergue has a plain line, a prow below bunch of grapes.

Rev.—Amphora of late type with lip, as on the drachms of No. 66 β with **ZHNΙΣ** &c., to r. of which magistrate's name, and to l. **ΧΙΟΣ**. The whole in wreath tied below, generally composed of vine-leaves, and terminating, as in previously described coins, in two thyrsus-like knobs above. Very often an incuse circle or concave field.

Æ. ↑↑ and ↑↓ 15.00–13.50 mm. 37.5 grains (2.43 grammes). Athens Cabinet, found in Delos, *J. Int. d'Arch. Num.*, 1911, p. 89, Berlin and Vienna Cabinets.

ΑΘΗΝΙΚΩΝ Sphinx seated on plain line, thyrsus, or winged caduceus.

↑↑ 15.00–12.00 mm. 37.7–35.5 grains (2.44–2.30 grammes). Brit. Mus. Cat. Ionia, Chios, No. 85, Athens, and Paris.

ΑΙΣΧΙΝΗΣ Dotted border *obv.* Sphinx seated on winged caduceus and club combined. One specimen at Paris has no dots *obv.*, but an ivy-wreath round *rev.* [Pl. XI. 17.]

↑↑ 14.00 mm. 32.0 grains (2.07 grammes). Brit. Mus. Cat. Ionia, Chios, No. 86, and Athens Cabinet.

ΑΠΕΛΛΗΣ Sphinx seated on winged caduceus and club combined.

↑↑ 13.50-12.50 mm. 42.4 grains (2.75 grammes). Brit. Mus. Cat. Ionia, Chios, No. 87, Paris Cabinet, and Coll. B. Yakountchikoff.

ΑΠΟΛΛΩΝ[ΙΔΗΣ] Sphinx seated on club.

↑↑ 14.50-13.50 mm. 46.0-33.9 grains (2.98-2.20 grammes). Brit. Mus. Cat. Ionia, Chios, No. 88, Athens Cabinet, found in Delos, *J. Int. d'Arch. Num.*, 1911, p. 79, Paris, illustrated [Pl. XI. 18], Vienna, and Munich Cabinets.

ΑΡΤΕΜΗΣ Sphinx seated on serpent staff. (One specimen at Athens has a palm-wreath round rev. All the rest have the usual vine-wreath.)

↑? 15.00 mm. Wt. ? Rollin and Feuardent's Cat., 1864, no. 5442.

ΑΡΤΕΜΙΔ[ΩΡΟΣ] Exergual line ?

↑↑ 15.75-14.00 mm. 34.4 grains (2.23 grammes). My collection, and a dealer's stock in Chios, 1913.

ΓΟΡΓΙΑΣ Sphinx seated on plain exergual line with prow r. below bunch of grapes.

↑↑ 13.50-12.50 mm. 37.8-29.5 grains (2.45-1.91 grammes). Brit. Mus. Cat. Ionia, Chios, No. 90, Paris Cabinet, my collection, and Coll. E. T. Newell.

ΔΗΜΟΚΛΗΣ Sphinx seated on plain exergual line with prow (?) r. below bunch of grapes.

↑↑ 13.00 mm. Wt. ? Athens Cabinet, found in Delos and published *J. Int. d'Arch. Num.*, 1911, p. 93, and Munich Cabinet.

ΔΗΜΟΚΡΑ[ΤΗΣ] Sphinx seated on plain exergual line. No symbol.

↑? 12.00 mm. Wt. ? Kofod Whitte, p. 64, No. 93, e Mus. Töchon. (Sestini).

ΔΙΟΜΗΔΗΣ Sphinx seated l. on caduceus.

(One spec. has $\uparrow \leftarrow$) $\uparrow \uparrow$ 15.00-13.00 mm. 31.5-27.8 grains (2.04-1.80 grammes). Brit. Mus. Cat. Ionia, Chios, No. 91, &c.

EYΞENΟΣ Sphinx seated on club. One specimen at Athens has a dotted border on *obv.*

$\uparrow \uparrow$ and $\uparrow \leftarrow$ 14.50-12.75 mm. 47.8-38.3 grains (3.10-2.48 grammes). Athens, Munich, illustrated [Pl. XI. 19], Vienna, and Berlin Cabinets.

ΚΛΕΙΔΗΣ Sphinx seated l. on caduceus or palm-leaf.

(One spec. has $\uparrow \leftarrow$) $\uparrow \uparrow$ 15.00-13.50 mm. 50.8-42.9 grains (3.29-2.78 grammes). Brit. Mus. Cat. Ionia, Chios, No. 92, &c.

ΜΗΝΟΓΕΝΗΣ [Σ] Sphinx seated on plain line, club, or winged caduceus.

(One spec. has $\uparrow \leftarrow$) $\uparrow \uparrow$ 15.50-13.25 mm. 53.9-29.8 grains (3.49-1.93 grammes). Brit. Mus. Cat. Ionia, Chios, No. 93, &c.

ΜΗΝΟ-Ι-ΙΛΟΣ Sphinx seated on plain line or on serpent staff, and specimens in Coll. B. Yakountchikoff and Copenhagen (K. Whitte's No. 128) have head-dress of Isis in field l. of *obv.*

$\uparrow \uparrow$ 15.00-12.50 mm. 57.2-31.5 grains (3.77-2.04 grammes). Brit. Mus. Cat. Ionia, Chios, No. 94, Berlin Cabinet, and Coll. E. T. Newell.

ΜΗΤΡΟΔΩΡΟΣ Sphinx seated on plain exergual line with prow r. below bunch of grapes. (The inscription is not always as rendered here, in many specimens the upper line only being given (see contemporary drachms), and in one case at Berlin the last three letters appearing on the l. of the amphora.)

$\uparrow \uparrow$ 14.00-13.50 mm. 29.6-28.0 grains (1.92-1.81 grammes). Paris Cabinet, Coll. E. T. Newell, and dealer's stock in Chios, 1913.

ΜΙΚΚΑΛΟΣ Sphinx seated on serpent staff.

(One spec. has ↑↓) ↑↑ 14.00-13.25 mm. 46.8 grains (3.03 grammes). Brit. Mus. Cat. Ionia, Chios, No. 95, Athens, found in Delos, *J. Int. d'Arch. Num.*, 1911, p. 79, and Vienna Cabinets.

ΜΙΑΤΙΑΔΗΣ Sphinx seated on serpent staff.

↑↑ 15.00-13.50 mm. 42.5 grains (2.75 grammes). Athens and Berlin Cabinets.

ΞΑΝΘΙΠΠ[ΟΣ] Sphinx seated on winged caduceus. In field l. of rev. head-dress of Isis.

↑↑ 15.00-13.00 mm. 31.5-29.0 grains (2.04-1.88 grammes). Brit. Mus. Cat. Ionia, Chios, No. 96, Athens and Vienna Cabinets.

ΣΤΡΑΤΟΝΙ[ΚΟΣ] Sphinx seated on plain exergual line with aplustre r. and sometimes bunch of grapes as well.

(One spec. has ↑←) ↑↑ 15.50-13.00 mm. 44.75-42.6 grains (2.90-2.76 grammes). Brit. Mus., Cat. Ionia, Chios, No. 97, Berlin, Munich, and Aberdeen Univ. Cabinets.

ΤΡΥ·Ι·ΩΝ Sphinx seated on club with cantharus below its upraised forepaw. No grapes.

The small bronze coins that may be looked upon as roughly contemporary with the above are the following:

68. *Obv.*—Sphinx of late style seated l. or r. on plain exergual line, generally without grapes; wings curled as in types Nos. 66γ and 67; only one foreleg showing and never raised.

Rev.—Amphora with lip between magistrate's name r. and **ΧΙΟΣ** l. No wreath or border on either side. No symbol.

Æ. ↑↓ 8.75 mm. 21.9 grains (1.42 grammes). Berlin Cabinet.

ΑΝΤΙΚΑ[ΗΣ?] Sphinx to l. Bunch of grapes in field l. of *obv.*

↑↓ 10.50 mm. 15.7 grains (1.02 grammes). Berlin Cabinet.

[Α]ΡΓΕΙΟΣ Sphinx to l.

↑↑ 10.75 and 10.00 mm. 17.9 and 15.1 grains (1.16 and 0.98 gramme). My collection [Pl. XI. 20] and Berlin Cabinet.

HPAIOΣ Sphinx to l.

↑↓ 10.50 mm. 18.1 and 15.0 grains (1.17 and 0.97 gramme). Berlin Cabinet, both specimens.

HPOKPAT[ΗΣ] Sphinx to r. (The Berlin specimens only read HPOKPA..., but the T is supplied by Hirsch's Sale Cat. of Philipsen Coll., No. 2254 (part of), evidently describing the same coin.)

(Three specimens have ↑←) ↑↑ 10.00-9.25 mm. 17.75-11.0 grains (1.15-0.71 gramme). Athens, Berlin, and Munich Cabinets, &c.

ΦΑΝΑΓΟ[PHΣ or PAΣ] Sphinx to r. A bunch of grapes appears on *obv.* of two specimens.

↑↑ 9.50 mm. 12.4 grains (0.80 gramme). Coll. E. T. Newell.

[E]K. OΔ - - Sphinx to l.

No. 59 *a*. The style of these tetradrachms accords with the general remarks made by Müller on his Class V.

The Sphinx symbol, their distinguishing feature, is of uniform type, and is never represented here with one raised forepaw as on the later coins; and it may be said to resemble, in its broader aspect, the Sphinx of types Nos. 61-2 and even Nos. 56-7. It is just as much a Chian Sphinx, in other words, as the one seen on the later issues of tetradrachms, about which no doubt has ever been raised because of the Dionysiac emblems that accompany it. The magistrates' names are indicated by single letters or simple monograms, the latter consisting as a rule of three letters at the most. I am not

contemplating the possibility that the single letters may represent the years since the issues began, as their appearance is opposed to such a supposition.

Two magistrates generally seem to have been represented on these early tetradrachms, judging from the separate groups of letters or monograms found on them. These are placed either in the field to left or under the throne of the reverse. In one instance, at Berlin, the name is rendered in what looks like an abbreviated though not combined form thus, $\begin{smallmatrix} \Lambda \Sigma \\ \chi \end{smallmatrix}$. As, however, these letters might just as easily represent two magistrates as one, I am not including the group $\Lambda \Sigma \chi$ -- among the incomplete names, although this has sometimes been done.⁶³


Occasionally the letters are enclosed in a circle $\textcircled{\Lambda}$ and $\textcircled{\Sigma}$, both taken from coins in the British Museum, and there is one instance of a symbol in addition to the Sphinx. This is a double-headed axe in conjunction with the monogram $\chi\alpha$, also from the British Museum. Such a subsidiary symbol could hardly have been used if the Sphinx had been the mark of the magistrate and not of the mint. The little Sphinxes that sometimes form part of the throne-legs [Pl. X. 11 and 12] also suggest a local origin for the coins, and support the contention that these tetradrachms were really the issues of the state. I am not sufficiently familiar with the Alexandrine tetradrachms in general to say whether Sphinxes occur or not in this position on specimens attributed to other mints, but I have certainly never observed them so used.

⁶³ See R. Münsterberg's *Beamtennamen*, &c., p. 108.

The monogram ΘΞ (possibly for ΘΕΡΣΗΣ, type No. 62 *α*) occurs both on this and the next type. The letter Γ, sometimes written retrograde, as in PL. X. 10, seems to be of a different character from the other single letters placed under the throne, and may refer to the same original as the letters ΠΟ so frequently met with in the field of tetradrachms with names in full [PL. X. 14]. A similar Γ, sometimes written retrograde, is also seen on the contemporary bronze of type No. 62 *β* [PL. XI. 10]. This Γ or ΠΟ may possibly represent some particular workshop or branch of the mint, as suggested by Beulé with regard to the late Athenian tetradrachms (*Monnaies d'Athènes*, p. 141)—ΠΟ[λιούχου], for instance, after Athene Poliuchos, one of the principal deities worshipped at Chios—and may even be the same Π as is found well on in imperial times in the exergue of certain issues of the *dichalkon* and *hemiassarion* denominations. The letters ΑΡ, which occur in the same position as ΠΟ on some of the other tetradrachms with names in full, probably have a similar significance, though I cannot suggest an interpretation for them, and I have not observed their recurrence elsewhere.

The coin in the British Museum with a Sphinx raising its forepaw over a club is unique to the best of my belief, and is still more interesting on account of the connexion it suggests with the three bronze issues that I have assembled under sub-type No. 62 *β*. These all show a club in front of the Sphinx, and, in the majority of cases, the letter Γ between its feet. The letter below the Sphinx of this tetradrachm is Κ, and one of the bronze issues in question bears the name ΚΑΥΚΑΣΙΩΝ.

No. 59 β . These coins form an intermediate class from the point of view of Chian numismatics, though according to Müller's arrangement they are grouped with the following type under his Class VI. As Müller observed, they are more spread in fabric and of more careless workmanship and style than the foregoing.

The monograms are more complicated than most of those occurring on type No. 59 α , and the Sphinx is represented in various ways. The specimen now at Vienna, on which the Sphinx is depicted holding a bunch of grapes, or raising its forepaw above it, is the only one of the kind known to me, though Müller seems to have observed others. The monogram , from a coin in the British Museum, might, with the help of a little imagination, be resolved into the name **MENEΣΘΕΥΣ**, or at any rate **MENEΣΘ**, which is found among the magistrates of the bronze sub-type No. 62 β , already referred to more than once. This tetradrachm, unlike the rest of its class, has the letter Σ beneath the throne, and though probably only a coincidence, it is worth while remarking that the remaining name of the bronze group in question is **ΣΩΣΤΡΑΤΟΣ**.

The existence of this tetradrachm, and of the one mentioned above with the Sphinx holding a club, raises a question of chronological arrangement. Should we regard these pieces of Müller's Class VI with letters or monograms—for the one showing the club is really nearer in style to Class VI than to V—as invariably earlier than those with names or not? If the suggestion now made regarding the possible contemporaneity of these two coins with the three bronze issues of sub-

type No. 62 β be correct, it most certainly constitutes an argument against monograms being considered in every case earlier than names. General considerations of style, on the other hand, support this, for there are differences of treatment that distinguish this sub-type No. 59 β from No. 60 quite clearly and consistently, although not of sufficient importance for it to be classed separately according to Müller's arrangement. The bronze group in question is undeniably later than type No. 62 α , and yet we are justified in considering types Nos. 60 and 62 α as of the same date because of the names that they and the corresponding drachms have in common. It is a point that cannot be settled from the facts at present in our possession, but it seems worth while to draw attention to this little piece of evidence affecting it.

No. 60. We now come to the coins bearing names written in full. As will be seen from the detailed description, the throne of Zeus on their reverses is, with one exception, always represented without a back, and the Sphinx, seated on a prostrate amphora, also with one exception, invariably raises its further forepaw. It may thus be said to resemble the Sphinx of types Nos. 66 α and 67. There is also no evidence in this type suggestive of a second magistrate, the only letters in addition to the names being the two groups $\Pi\omicron$ and ΛP , to which reference has already been made.

The list contains eighteen names, of which two, as already observed, are met with on other series that may fairly be considered contemporaries of these tetradrachms. A third name, $\text{MENEKPAT\H{H}\Sigma}$, also

occurs as well on one of the drachms, but as this drachm belongs to one of the really late issues it cannot represent the same magistrate.

Of the other names concerned, one, at least, has an undoubted Chian ring. I refer to $\text{ΟΙΝΟΠΙ}[\Delta]\text{ΗΣ}$, a name that may very well have been formed on that of the national hero Oenopion.⁸⁴ Müller reads the name ΟΙΝΟΠΙΝΗΣ , but the alteration as above seems desirable, especially as ΟΙΝΟΠΙΔΗΣ is known from other sources. Both $\Lambda\Lambda\text{ΣΩΝ}$ and TIMOΔΑΜΑΣ are names unrecorded elsewhere, and of questionable appearance, but there seems no reason to doubt the reading of the coins. $\Delta\Lambda\text{ΣΩΝ}$ is suggested instead of the former by Collitz and Bechtel, *Griechische Dialekt-Inschriften*, vol. iii, part 2, No. 5661. The prevalence of names in $-\Omega\text{Ν}$, to which attention was drawn under type No. 56, seems to have continued at this period.

As regards the lettering of all the tetradrachms, the forms used in type No. 60 are, on the whole, later than in No. 59 α or β . Ε is generally Ε , except in a few monograms. Ι appears as Ι in type No. 59, but as Ζ in No. 60. Θ is always dotted. Ο is always smaller than the letters accompanying it. Π is Π or Г in type No. 59, and Π in type No. 60. Σ is usually Σ , except in some single letters and monograms of type No. 59, where the form with bars of equal length is found. An early and isolated instance of a lunate *sigma* seems to be provided by one of the monograms (fourth example quoted under type No. 59 β) ϠϞ , where the character

⁸⁴ See above, p. 10, *Num. Chron.*, 1915. The name *Oionopion* occurs on coins of Erythrae (*Brit. Mus. Cat. Ionia*, No. 138) and of Phygela, near Ephesus (*Babelon's Cat. of Waddington Coll.*, No. 1911).

on the extreme right is inexplicable in any other way. Ω is generally Ω , very rarely Ω in type No. 60, and only a little less so in No. 59.

As a general observation it may be pointed out that the lettering is careless in execution and inferior to that of types Nos. 61-2, but there is no trace anywhere of "apices" or the wedge-shaped terminals to the letters that become the rule from type No. 63 onwards.

The weights are those of a reduced Attic tetradrachm, and correspond perfectly with the drachms described under types Nos. 61 and 63.

No. 61. The few issues that we have belonging to this type are quite distinctive, and, as stated above, are sufficiently removed both in style and detail from the various forms of type No. 57 to make it probable that a gap of at least a few years must stand between them. Furthermore, the rendering both of Sphinx and amphora on these coins is practically identical with that of the same features in the bronze type following immediately after this, which is manifestly later than the bronze issues last described.

The evidence of the lettering, being confined to so few specimens, is hardly sufficient to serve as the basis of an argument. The form of Σ found on the piece with ΑΓΓΕΛΙΣΚΟΣ , however, in which the four bars are of equal length, as in many of the bronze issues of the next type, but unlike those of the earlier type, No. 57, encourages me in thinking that these coins are the contemporaries of the first tetradrachms. As already noted, this form, which may be called an archaism in the second century, also occurs on them.

The prow symbol now appears for the first time. It

will be noticed also that the weights of all the known examples of this type exceed 63.5 grains (4.11 grammes), a point that is only occasionally reached by the subsequent issues.

No. 62 *a*. The large quantities of this type that are available for examination put it on quite a different footing from all others of the Chian series. I am only quoting sources of origin in the cases of specimens illustrated on the plates, since practically all collections possess these coins. I am also only giving their extreme variations of measurement and weight.

There is a striking uniformity of style about these issues considering that they were spread over fifty odd years in all probability. That the work was good, even among the coins of what may be called the middle period of the series, is evident from the well-preserved piece illustrated **Pl. XI. 4**. It is almost as if a last effort were being made to maintain the severe and conservative character of the mint, and, if my contention as to the duration of the period be correct, it certainly succeeded. Including three names belonging to the sub-type No. 62 *β* there are twenty-two in all that have survived. This is a relatively large number for the fifty-seven years concerned compared with those afforded by other periods—Per. VIII, for instance, with twenty-four names to 111 years—but by no means enough to determine the total number of years during which similar work was done, if taken by itself. As already suggested, we get no help from the development of style, there being very little variation between the issues till we reach the sub-type No. 62 *β*. But a hint may, I think, be gained from the following. Among the

details given above it will be observed that some of the names are found in conjunction with two or even three different symbols. Whatever these symbols may mean it will be granted that each one records a separate issue for the particular magistrate concerned. If, then, we count all these separate issues, and assume once more that every issue covers the period of one year, we shall find that we have material to account for thirty-five years. Allowing after that for missing names, several of which can presumably be supplied from the contemporary tetradrachms, drachms, and small bronze coins, the original conclusion does not seem to be far wrong.

Of the names concerned I prefer to restore **ΑΡΙΣΤΟΜ** - - to **ΑΡΙΣΤΟΜΑΧΟΣ** rather than to any other of the possible alternatives on the strength of a coin in my possession which reads **ΑΡΙΣΤΟΜ/** - -. **ΗΡΟΣΤΡΑΤΟΣ** for **ΗΡΟΣΤΡΑ** - - seems certain.⁸⁵ **ΘΕΡΣΗΣ** is a name that is apparently known only from these coins. It is an Ionic form, and probably a pet name for *Θερσίλοχος*. Considering the quantity of pieces extant it is unfortunate that none should have been encountered showing a fuller form than **ΚΗΦΙΣΙΔΗ** - -. For this **ΚΗΦΙΣΙΔΗΣ** seems quite a plausible restoration. **ΚΥΛΛΑΝΟΣ** is an unknown name, but it is quite clear to read on a coin at Berlin, and on one at Paris it appears as **ΚΥΛΛΑΝΟ**. Otherwise it only occurs much abbreviated, and has been read **ΚΥΛΛΑΜ** - - (*Brit. Mus. Cat. Ionia, Chios*, Nos. 71-2) and **ΚΥΛΛΑΝΔ** - -. The latter reading comes

⁸⁵ Mionnet's reading **ΠΡΟΘ** - - (*Suppl.*, vi, p. 396, No. 71) would seem to have been founded on one of the coins bearing this name, or possibly on the later issue with **ΜΗΝΟΔΩΡΟΣ**.

from Athens, where it is suggested that the complete form should be *Κύλλανδρος*, on the analogy of *Κηφίσανδρος*, as if from a place called *Κύλλα*. **ΠΟΛΙΑΝΘΟΣ** is also a name for which these coins are the sole authority (see Pape's *Wörterbuch d. Gr. Eigennamen*, ed. 1875). Fick and Bechtel seem to have overlooked it and only give the form *Πολιάνθης*, but a specimen at Paris reads **ΠΟΛΙΑΝΘΟΣ** quite distinctly. This is the only one known to me, however, in which any letter beyond the Θ can be read.

All the above, together with the issues representing the magistrates *Ἀργεῖος*, *Ἀσπασίος*, *Γνωσις*, *Δημήτριος*, *Ἡγέμων*, and *Ἰκέσιος*, belong to the middle period of development as regards style, but the coins with the name *Λάμπρος* are somewhat degraded, and form a link between the foregoing and those grouped separately under the sub-type No. 62 β. Those exhibiting the best style will be found noted below.

The lettering of these coins is uniformly good and consistent, and, as in the case of the tetradrachms, there is no trace among them of letters with "apices" or wedge-shaped terminals. The forms used are slightly earlier in some cases than on the tetradrachms. **Ι** unfortunately does not appear. **Ε** is always **Ε**. I have noted one instance of a barred **Θ** on a specimen with the name **ΠΟΛΙΑΝΘ[ΟΣ]** at Berlin, otherwise the series yields nothing but **Θ**. The **ο** is always smaller than the accompanying letters. **Π** is never **Π** as on the tetradrachms; it sometimes assumes a transitional form **Π'** in **ΛΑΜΠΡΟΣ**, already noted as one of the last of the series, but is generally **Π**. **Σ** varies from **Σ** to **Σ**. There is a tendency in **Φ** for the bar to project both above and below the level of the other letters,

the first appearance, so far, of this stage in the normal development of the letter. The tetradrachms of type No. 60 would no doubt have shown it too if only their engraving and striking had been less careless. Ω is always Ω , and never Ω , as on the tetradrachms. Though it by no means constitutes a proof in itself, this lettering strongly supports my contention that the group under discussion should be attributed to the first half of the second century B.C. The lettering is thoroughly typical of the forms then employed in the eastern portion of the Greek world, as a glance at any series of which the chronology is fairly well established, like that of Ephesus, will show. The fact too that none of these coins was found in the Delos excavations, while specimens of type No. 67 and later ones did occur there, provides us with an approximate limit for the duration of their issue with which the present attribution is in agreement.

The symbols are such a prominent feature of the coinage now, appearing as they do both on obverse and reverse indifferently, that a study of them might be expected to yield some information regarding the methods of the mint. It seems evident, as I have already suggested, that the combination of names and symbols may furnish an indication as to the number of years during which the coins were struck. But, as the laws regulating the Greek mints are so very little known, and as it is highly injudicious to apply any knowledge that we may gain about one city to another, one could not come to any conclusion worth proposing without some new fact of importance. It cannot be said, however, that this series adds anything to the evidence collected by Fr. Lenormant, bearing on the

question of mint officials. The coins only serve to confirm the impression already gained from type No. 57, that there must have been at least two magistrates at Chios who shared the responsibilities of the coinage, since the same name is found associated with two and even three different symbols, and the same symbol or symbols with several different names. W. Fietze supported his thesis with regard to Redende Abzeichen (*Journ. Int. d'Arch. Num.*, 1913, p. 17) by quoting the race-torch accompanying the name **ΛΑΜΠΡΟΣ** on one of these issues, but, as was observed in the introduction to Per. VIII, there can be no question here of "canting devices". The type might just as easily be called upon to refute the theory, since the bunch of grapes does not happen to appear at all on the issues of the very magistrate, **ΣΤΑΦΥΛΟΣ**, who might have used it to advantage.

As a matter of fact the bunch of grapes is probably still to be regarded as part of the type, even when it appears on the reverse of the coins, and not as one of the magistrates' symbols. It is never found alone, for instance, and is used or omitted apparently at random. It had already been placed upon the reverse before the question of magistrates' signets arose (see type No. 53^a), and will be seen again in that position on the small silver of the next century when the employment of symbols seems to have ceased.

The prow has quite a different form here from that which it assumes on the next bronze type, on some of the later drachms, and on most of the imperial bronze. In these cases it no doubt also serves as part of the type and is confined then entirely to the obverse of the coins.

Certain objects among the symbols recur at different periods too far removed from one another to allow that the magistrates who used them were one and the same individual, though they might have belonged to different generations of the same family. This type, for instance, includes the race-torch and corn-ear which first put in an appearance on the drachms of type No. 57, and the latter of which is seen again on a bronze that cannot have been struck before the middle of the first century. The wing had only a short vogue apparently, but the club, caduceus, and rudder remained in use till early imperial times, and the star till the last days of the mint. On the other hand, the presence of the same symbol on coins of dissimilar type often helps in showing that they were probably contemporaries. Of such a nature was the club on one of the tetradrachm issues and on the bronze of type No. 62 β referred to above. It seems worth while, therefore, to draw attention to the various objects as they appear, in addition to the other distinguishing features that occasionally call for comment.

Considering the amount of material at our disposal that is provided by these bronze coins, we ought to be able to form some opinion as to the order in which the magistrates followed one another. The heavy wear to which most of the specimens have been exposed, however, and the frequent application to them of the tripod countermark [Pl. XI. 5 and 9], make any profitable comparison of obverse dies a practical impossibility. It will be necessary to say a little more about this countermark directly, but for the moment I should like to point out that a study of its incidence seems capable of affording a rough

indication of the sequence in which the issues bearing it appeared.

The countermark seems to occur on what, from considerations of style, may be supposed to be the later issues more frequently than on the earlier ones, and it is for the purpose of applying this test that I am giving the actual numbers of the coins examined together with those of the countermarked specimens. From these figures it will be seen that the coins with the name *Λεωμέδων*, for instance, which may be considered to have been some of the first issues of the series, show only one countermark out of twenty specimens examined, while the eighteen specimens with *Λάμπρος* include five bearing the countermark. The issues of *Στάφυλος*, *Τηλέμαχος*, *Τίμανδρος*, *Τιμοκλής*, and *Φοῶνιξ* are all noticeable for their good style as well, and the proportion of countermarked specimens among them is much lower on the whole than among any of the middle-period issues mentioned above, or of sub-type No. 62 β. My theory is that a supplementary or emergency issue was made of these coins at some period subsequent to the circulation of sub-type No. 62 β, and that it was countermarked with a tripod. As the latest coins struck would be the most readily available they would be more largely used in the new issue than those of earlier date, and it is interesting to find that the coins of best style show the smallest proportion of countermarks.

As for the countermark itself, I think that there can be no doubt that it is not a foreign one. Its distribution is too general for that, for it will have been observed that there is not a single issue in the series that cannot provide at least one countermarked

specimen. On the other hand the tripod is not one of the Chian symbols. Still, it may refer to the temple of Apollo at Phanae, the principal shrine in the island, or even to Atarneus, where Apollo was also worshipped, and where the Chians were accustomed to look for help.⁸⁶

It is even more difficult to suggest a date for the supposed emergency issue. I can only surmise that it appeared shortly after the original issue, thus precluding the probability of its having been made on the return of the islanders from their exile in Pontus in 84 B.C.—a theory that attracted me at one time.

The weights of these coins are not by any means so regular as those of the previous bronze issues of the same size, type No. 56, though they apparently aim at the same standard.

As will be seen from the foregoing list, the die-positions are almost invariably ††, while in the case of type No. 56 they were very varied.

No. 62 β. The coins constituting this sub-type can easily be picked out from the remainder of the series, the change in style having by this time become fairly marked. There is no difference in fabric, the concave

⁸⁶ In *Num. Chron.*, 1913, pp. 389-98, Mr. J. G. Milne published a very interesting paper on a similar phenomenon at Cyme. There also one particular bronze issue, and one only, as in this case at Chios, seems to have been countermarked by the issuing city. Mr. Milne also points out that the same thing was done as well at Erythrae and Clazomenae, and more rarely at Cnidus.

What is more to the point still is that the issues so treated of Cyme, Erythrae, and Clazomenae all belong to the period about 190 B.C.—that of Cnidus is apparently a century later—like this issue of Chios. It really looks as if there may have been some common cause for all these countermarks.

field being just as frequently met with as in the other sub-type, and the weights are neither more nor less regular. The die-positions are also the same as in the coins just described.

Of the three magistrates' names concerned, **ΚΑΥΚΑΣΙΩΝ** and **ΜΕΝΕΣΘΕΥΣ**⁸⁷ are generally encountered in much abbreviated forms, but they appear practically complete, the former on a piece in the public library at Chios, and the latter on No. 44 of the Hunterian Cabinet [Pl. XI. 10]; **ΚΑΥΚΑΣΙΩΝ** is interesting as affording an instance of a purely local name. There was a harbour in Chios called *Τὰ Καύκασα*⁸⁸ (on the south coast of the island according to Pape, or the north-east according to others), from which was named the Apollo Kaukaseus worshipped at Erythrae. On this god-name *Καυκασεύς* must have been formed the personal name *Καυκασίων*,⁸⁹ which is found nowhere else in the Greek world. **ΣΩΣΤΡΑΤΟΣ** is a name that we have already met with among the Chian magistrates.

The only point to note about the lettering of this group, which is identical in other respects with that of sub-type No. 62 *a*—even the Θ being always dotted—is the form of Ω on the only specimen on which it appears with the name *Καυκασίων*. This is Ω, a form that is found in imperial times, though not on intermediate issues.

It seems possible that *Σώστρατος* may have been the first of these three magistrates, since his issues are

⁸⁷ Mionnet's doubtful reading **ΜΕΛΧΙ** (*Suppl.*, vi, p. 395, No. 62) may have arisen from a misreading of this name.

⁸⁸ See above, p. 9, *Num. Chron.*, 1915 (Part I), and Herodotus v. 33.

⁸⁹ See Fick and Bechtel, *loc. cit.*, p. 355.

linked to those of the previous groups by the specimen at Athens bearing his name in combination with the bunch of grapes and the race-torch symbol, in place of the later club and rudder. This may be further supported by the fact that the older form of Ω is invariably found on coins with $\Sigma\acute{\omega}\sigma\tau\rho\alpha\tau\omicron\varsigma$.

No. 63 *a*. The issues composing this group of drachms are very rare, each variety being represented by a single specimen only. They are to be distinguished from the later issues with reverse in a wreath by the dotted circle on the obverse, and by the formal type of the vine-wreath [Pl. XI. 7-8], less naturalistic than in type No. 61, but less florid than in No. 66 β , &c.

The style both of obverse and reverse shows a distinct falling off from that of the type No. 61 coins, and there was evidently a certain interval between them.

As already observed, too, it looks as if these drachms had not been struck in any considerable quantity.

The names do not call for any particular remark except that the $\Delta\omega\rho\acute{o}\theta\epsilon\omicron\varsigma$ of this period may, if correctly dated, be the great-grandfather of the $\tau\iota$. $\text{Κλαυ. Γοργίας Δωροθέου}$ who struck bronze in early imperial times. There is a $\Gammaοργίας$ at the end of this period who may well have been the son of the present magistrate.

The Ἀλκίμαχος is of course the name already mentioned as providing a link between these drachms and the late tetradrachms.

The lettering is chiefly remarkable for yielding the earliest instances of "apices" in the Chian series. Otherwise the forms of the letters are indistinguishable, as would have been expected, from those described under the last two bronze sub-types, the earlier drachms

and the tetradrachms. The **Ι** in **ΙΗΝΩΝ** seems to be the latest instance that we have of a *zeta* with the perpendicular bar, though, as already observed, the letter in question is unfortunately only rarely met with at this period.

The weights, as pointed out under type No. 57, are distinctly lower than in the previous type, No. 61, though not at variance with those of the tetradrachms. The die-positions are always $\uparrow\uparrow$.

The trident symbol makes its only appearance here in spite of the predilection now beginning to make itself felt for objects connected with ships and sea-faring. The club on the coin with **ΙΗΝΩΝ**, if correctly described, seems to connect this group with the sub-type No. 62 β , and to provide an extra link between them both and the tetradrachms of types Nos. 59 β and 60.

No. 63 β is the earliest and one of the very few instances extant of a drachm with Sphinx to right. Unfortunately the magistrate's name is illegible, and it almost looks as if the die had been purposely defaced. I only know of two specimens of the coin, one in Paris and the other in London. They are both from the same dies, the former being in rather better state than the latter. The magistrate's name has been read, in the one case as $\Delta\text{ΗΜΗΤΡΙΟ}\Sigma$,⁹⁰ and in the other as -- $\Phi\text{ΙΛΟ}\Sigma$, and though the former is the more plausible reading of the two, it cannot, I think, be accepted as correct.

⁹⁰ Mionnet, *Méd. Gr.*, vi, p. 389, No. 9; Kofod Whitte, No. 91; and Dr. Imhoof-Blumer, in *Gr. Münz.*, all agree that it can only be described as the most probable reading.

The concave field, which is well marked on the reverses of these two coins, is not seen again till the very last of the autonomous silver drachm issues. The cantharus, here used as a symbol, but later on to become prominent among the new bronze types, is worth noting. The lettering is careless, like the whole workmanship of the coin, but "apices" were apparently not used by the engraver.

No. 64. These small bronze coins are very rare. They seem to belong to quite distinct issues, and are remarkable in showing a Sphinx turned to left. On that account, and from the occurrence on one of them of the name *Ἐπμῶναξ*, it might be supposed that they belong to the same period as type No. 56. These resemblances, however, are quite outweighed by the style of the coins, and by the name *Λεωμέδων* in combination with the wheat-ear symbol. The lettering is good, and in agreement with that of the coins belonging to type No. 62. The concave reverse field, especially marked in the specimen with *Λεωμέδων*, is also characteristic of that series.

No. 65. These coins, of still smaller module than the last, and with the Sphinx to right, are also the undoubted contemporaries of type No. 62, as may be seen from their style and lettering, the occasional appearance of a bunch of grapes on the reverse, and the frequency with which names occur common to both series. They are probably a little later than type No. 64, but the *Ἐπμῶναξ* recorded among them may quite well be the same magistrate to whom reference has just been made. In fact the recurrence of the

name strengthens the supposition that these two types must be closely connected.

On the coin from Paris, placed last in this list, there are traces of a letter before . *airo* - - which is most probably Φ . If we could be sure of this the name might then be restored to *Φαιρομενός* (accent according to Boeckh), which occurs in the Chian inscription, *C. I. G.*, No. 2227, and Collitz and Bechtel, *loc. cit.*, No. 5668, and most probably on one of the late bronze issues (type No. 83).

The weights are very irregular, though none surpasses 17.4 grains (1.13 grammes), which was also practically the upper limit of type No. 58.

The die-positions are almost, but not quite, as constantly ↑↑ as in type No. 62.

No. 66 *a*. Attention has already been drawn to this unique coin, and to its importance in furnishing a link between the two halves into which the present period may roughly be divided. The wreath on the reverse is the wreath of type No. 63, though the amphora is a trifle later [Pl. XI. 7, 8, and 13], but the Sphinx's attitude is precisely that of the small bronze coins described under type No. 67 [Pl. XI. 17-19], or of the symbol on some of the late tetradrachms. It occurs again on a few of the silver issues attributed to the first century, but not on any intermediate one.

The name **ΑΝΔΡΩΝΑΞ** is not recorded either by Pape, or by Fick and Bechtel, but it seems clear, and **ΜΗΤΡΩΝΑΞ** was known at Erythrae (*B. M. Cat.*, 160 and 245). **ΜΑΝΔΡΩΝΑΞ** would be a plausible restoration, as it is a common Ionian name, but there is no room for the initial **Μ** on the coin.

No. 66 β - δ comprises the drachms of varying designs that seem to follow the preceding, and probably represent the issues made between 133 and 88 B.C. It will be noted from the coins illustrated on Pl. XI. 14-16 that the Sphinx—always represented to left—is of later style than anything we have yet seen, that the dotted circle, when it appears, is coarser than before, and that the amphora gradually develops the lip that is almost a constant feature of the first-century coins.

It is practically impossible to arrive at any real order of sequence for these drachms, though the one I am suggesting satisfies most of the points connected with style. It must be understood, however, to be purely conjectural, as the evidence from community of dies, which alone can be taken as conclusive in such a case, is very scarce. The coins of the γ and δ sub-types [Pl. XI. 15] are quite distinct in appearance from any of the other groups composing this type or from anything that precedes or follows them. They probably succeeded the issue with **ZHNIX** [Pl. XI. 16] and its companions, though I am placing that last on the plate because the type of amphora it bears is practically identical with the one that chiefly characterizes the next period.

On Dr. Imhoof-Blumer's coin with **KOPQNOC** the Sphinx wears a *modius*. This object is seen fairly frequently on bronze of the first century B.C., but this is its first appearance in the series, and its only one, so far as I know, on a silver piece.

The issues now appear to have become much more plentiful than when tetradrachms were still being struck, especially towards the latter end of the period, for coins bearing the name **ΔΕΡΚΥΛΟΣ** are among

the commonest of Chian silver pieces. As so many of these are in mint state, it seems just possible that they may have been buried when Zenobius was collecting his fine.

An Ἀπελλῆς of Chios is mentioned in one of his letters by Cicero,⁹¹ who is known to have visited the island in about 78-76 B.C. It is consequently tempting to connect this reference with the magistrate now suggested as having held office some ten years prior to that date. But the letter in question was not written till 45 B.C., and treats, moreover, of a mere commercial transaction. It is, therefore, unnecessary to suppose either that Cicero was alluding to a magistrate at all, or that the Ἀπελλῆς of the coins should be brought down in date to the second half of the first century. Ἀπελλᾶς, whose name occurs here also, was doubtless a different person from the preceding, and probably of earlier date.⁹² The specimen with this name in Berlin has an additional interest in being the only Chian coin known to me with an undoubtedly foreign countermark upon it. The bust of Athena is quite distinct, and might be derived from one of several towns on the mainland of Asia Minor, Clazomenae, Heracleia ad Latmum, Lebedus, or Priene. Μητᾶς is quite a different order of name in -ᾶς from Ἀπελλᾶς, and is characteristic of the late period in which we now find ourselves. The name is unknown from any other source except these coins (see Collitz and Bechtel, *Griechische Dialekt-Inschriften*, vol. iii, part 2, No. 5683). Ἀργείος and Στάφυλος are names that appeared on

⁹¹ *Letters to Atticus*, xii. 19.

⁹² Compare the similar case of Ἰππίας and Ἰππίης in Period VII.

coins of type No. 62 *a*, but if they represent the same magistrates, which is hardly likely, it must have been at very much later periods of office.

The lettering of these five sub-types (including No. 66 *a*), though varied, has now become frankly late in character, and need not be minutely described. "Apices," or the wedge-shaped terminals already mentioned—the latter to be noted principally on the coins of sub-types No. 66 *γ* and *δ*—are in almost general use, and the old forms of I , P , and Ω have entirely disappeared. The chevroned form of Λ may be noted, as it has never appeared before, but is of fairly frequent occurrence here. Also two interesting and uncommon transitional forms of I and Ω are to be found on the coin with the name $\text{ZHNO}\Delta\Omega\text{PO}\Sigma$ in the British Museum (*Cat. Ionia*, Pl. xxxiii. 11). If carefully examined they will be seen to be intermediate between I-Z and $\Omega-\Omega$. The peculiar lettering noted in the name $\text{APTEMID}\Omega\text{PO}\Sigma$, especially the *omicron*, is taken from the coin in my collection, and will be referred to more fully under the next period.

The fashion of writing the magistrate's name in two lines, as in $\text{APTEMID}\Omega\text{PO}\Sigma$ and $\text{MHTPO}\Delta\Omega\text{PO}\Sigma$, as if to avoid abbreviation and yet conform to the limited space, is a sign of lateness, and will be found to occur frequently in the next period, especially on the bronze. The issues of the latter magistrate are also remarkable as affording the earliest appearance known of the prow on the obverse of a drachm (see below for further remarks on this head under type No. 67). The fresh symbols worthy of notice are the *aplustre* on coins with $\text{MHTPO}\Delta\Omega\text{PO}\Sigma$, the caps of the

DioscURI on one of the issues with **ZHNIS**, the figure of Dionysus (?) on the unique coin with the otherwise unpublished name **ΘΕΥΜΝΙΣ**, and the twin stars on coins with **MENEKAHΣ**.⁹³ The aplustre is, of course, to be expected now that references to ships and sea-borne commerce are becoming so frequent; numerous allusions to the DioscURI, the protectors of sailors, will be found among the small bronze coins ascribed to the next period, and the statue of Dionysus, if correctly described, is the forerunner of the popular type on the large bronze coins of the imperial period. The repetition of the other symbols, such as the eagle, winged caduceus, &c., helps to confirm the attribution of those different groups to the same period.

The die-positions are invariably ↑↑ among the specimens that I have been able to handle, with the exception of three pieces bearing the name **ΔΕΡΚΥΛΟΣ**, where they are ↑←. This latter position is seen more frequently among what I take to be subsequent issues, particularly in the case of bronze coins, so that, if any lesson is to be derived from the arrangement of dies, we are thereby provided with an additional reason for placing the coins of sub-types No. 66 γ and δ at the end of their class.

The question of weights was fully gone into under type No. 57 of the last period, but it is worth while pointing out afresh, in order to show the lower level now reached, that only two specimens out of the fifty-eight represented by this type from first to last are heavier than 61.7 grains (4.00 grammes).

⁹³ A second specimen of this coin, and the only other one known to me, is in the cabinet of Prof. Pozzi of Paris.

No. 67. These coins are fairly common on the whole, though perhaps not so well known as those of type No. 62.

The style of the Sphinx, apart from its raised fore-paw, comes sometimes very near to that seen in sub-type No. 62 β , as a comparison of PL. XI. 9-10 with 18 will show. The amphora belongs to the type to which attention has already been drawn in the case of the drachms with **ZHNIS**, &c., as one only met with on late coins. From this stage onwards, too, the amphora always has a pointed tip, so that it will no longer be necessary to refer to that detail in describing it. On the other hand, the frequent occurrence of a concave field on the reverse gives these bronze coins an earlier look, from the point of view of fabric, than the drachms of type No. 66, their undoubted contemporaries. The scheme of representing the Sphinx seated upon various objects in place of the usual exergual line is new, though it will be found again on certain of the succeeding issues. The Sphinx is always shown seated to right except in two issues.

As already suggested this elaborated exergual line seems to have been devised in order to represent some of the symbols, now in general use, on a flan that affords only a limited amount of space. The coins of $\Delta\pi\epsilon\lambda\lambda\eta\varsigma$, for instance, show a Sphinx seated on a winged caduceus and club combined, which may be compared with the winged caduceus on the reverse of his drachms (type No. 66 γ). Among the other objects employed in this way the serpent staff does not appear elsewhere, but the club is familiar, and the palm-leaf is to be seen on the drachm of Ζηνρόδωρος (type No. 66 δ).

Later on, when the wreath of the reverse type was suppressed, the symbol was placed between the letters $\chi\iota\ \omicron\sigma$, as in the case of the drachm in this period with $\mu\eta\tau\alpha\varsigma$ [PL. XI. 14], but as long as the wreath was retained there was hardly room for anything else in the field of the coins. A solitary exception to this is provided by the issue of $\Xi\acute{\alpha}\nu\theta\iota\pi\pi\omicron\varsigma$ which bears a head-dress of Isis on the reverse within the usual wreath. This method of placing symbols on the obverse other than the bunch of grapes or the prow follows the precedent set by type No. 62, but is not seen elsewhere. There are a few instances of the usual form of symbol on the obverse, accompanied then, as a rule, by a plain exergual line. These seem to occur among the latest issues of the type, for the most part, like the aplustre on coins of $\Sigma\tau\alpha\tau\acute{o}\nu\iota\kappa\omicron\varsigma$, and the head-dress of Isis on those of $\mu\eta\tau\rho\acute{\omicron}\phi\iota\lambda\omicron\varsigma$. The aplustre has appeared already in this period on the drachms of $\epsilon\rho\mu\acute{o}\phi\alpha\nu\tau\omicron\varsigma$ and of $\mu\eta\tau\rho\acute{\omicron}\delta\omega\rho\omicron\varsigma$, but the head-dress of Isis is new, though it is to be seen on one other issue of this series, that of $\Xi\acute{\alpha}\nu\theta\iota\pi\pi\omicron\varsigma$ mentioned above, and on a much later type attributed to the next period. The symbol is of interest as bearing witness to the introduction of a foreign cult.²⁴ The issue of $\tau\rho\acute{\upsilon}\phi\omega\nu$ with a cantharus before the Sphinx is of a different order from the preceding. In this case, and in the one mentioned above with $\Xi\acute{\alpha}\nu\theta\iota\pi\pi\omicron\varsigma$, it is difficult to say which symbol refers to the second magistrate, or whether a third may not be thus recorded as in one or two issues of type No. 62 where two symbols occur.

²⁴ Vitruvius relates (i. 7. 1) that there were temples to Isis and Serapis in the *emporium* at Chios.

The Sphinx is seated on a club on the coins of this magistrate, and they seem from their style to be among the earliest of this group. A cantharus is the symbol on the drachm of type No. 63 β , with the illegible name, ascribed to the end of the previous sub-period, and the two issues may well have followed closely after one another. Finally come the issues of *Γοργίας*, *Μητρόδωρος*, and possibly *Δημοκλῆς*, with a prow on the obverse. These all look as if they should be placed at the end of the series both on account of their own style and of that of the drachms corresponding to the first two.

From the evidence of the drachms with *Μητρόδωρος*, referred to with regard to this point under type No. 66, and that of the later drachms, attributed to the next period, some of which bear symbols on the reverse as well as a prow on the obverse, it would appear that the latter, like the bunch of grapes, is now to be regarded as part of the type. This would mean, of course, that these particular bronze issues have no second magistrate's symbol, but, as has been pointed out more than once, there is nothing unusual in that.

The late appearance of the coins of *Γοργίας* favours the suggestion made above that he may have been the son of the *Δωρόθεος* of type No. 63 α . Though the coins of *Ἀπολλων[ίδης]*, like all those showing the Sphinx seated on a club or other object, must be numbered among the early issues of the group, this magistrate presumably officiated sufficiently late to allow of his holding another term after the interval in exile. Further reference to this will be found below. In any case he must be distinguished from the *Ἀπολλων[ίδης]* who figures under type No. 65. The name

ΚΛΕΙΔΗΣ on one of the two issues with Sphinx to left [Pl. XI. 19] has been considered to be of doubtful authenticity. It is certainly unrecorded elsewhere, but is clearly legible on one of the coins bearing it, now at Athens. There is no room on any of the specimens that I have seen for the letters **ΕΥ** before the **Κ**, the addition of which would make a plausible restoration, and the final **Σ** being in many cases quite distinct eliminates the possibility that the name might be an abbreviation for **ΚΛΕΙΔΗΜΟΣ**.⁹⁵

The only evidence for the unique coin with **ΔΙΟΜΗΔΗΣ**, also with a Sphinx to left, is the work of Kofod Whitte, but I have always found his descriptions quite accurate in their main features.

It is probable that the last purely Ionic forms of names to be found among the Chian magistrates occur in the present group;⁹⁶ and the prevalence of the termination **-δωρος** both here and in part of the next period is also worth noting.

One or two late forms of letters may be noted. A barred **Θ** occurs on the coins of **Ξάνθιππος**, though

⁹⁵ See Münsterberg, *op. cit.*, p. 109. Several of Mionnet's doubtful names are to be explained as misreadings of coins included in this type: **ΛΗΝΙΚΟΣ** probably represents **Κλειδης** (see K. Whitte's description, *op. cit.*, No. 68, and Mionnet's *Méd. Ant.*, iii, p. 269, No. 42, both evidently referring to the same coin at Munich with Sphinx to left), **ΛΕΤΕΜΗΣ** — **Ἀρτεμης**, **ΟΛΛΑΝ** — **Ἀπολλωνιδης**, and **ΞΕΝΟ** — **Ἐξενος**.

⁹⁶ Collitz and Bechtel, *op. cit.*, No. 5683, give the following as the Ionic forms to be noted on Chian coins: **ΗΡΑΓΟΡΗΣ**, **ΘΕΥΤΤΙΣ**, and **ΙΠΠΙΗΣ**, described here under Period VII; **ΘΕΥΠΟΡΠΟΣ** for **ΘΕΥΠΟΜΠΟΣ**, Period VIII; and **ΘΕΡΣΗΣ**, **ΑΠΕΛΛΗΣ**, **ΑΡΤΕΜΗΣ**, and **ΜΗΤΑΣ**, Period IX. To these must be added **ΕΟΥΝΟΜΟΣ** from Period VII, **ΕΟΝΟΜΟΣ** from Period VIII, and **ΘΕΥΜΝΙΣ** from Period IX.

in those of *Ἀθηναίων* (accent according to Boeckh, *C.I.G.*, 2214) it is dotted, and Φ is everywhere rendered $\bullet\iota$.

The general style of the lettering varies between the forms with "apices" and what I am calling wedge-shaped terminals, the latter predominating largely. This peculiar style of lettering is not met with elsewhere in the Chian series than in these two types Nos. 66-7.⁹⁷

The die-positions show more variety than in any of the groups described since type No. 56 of Period VIII, though the majority are still $\uparrow\uparrow$. The late position $\uparrow\leftarrow$ will be seen to occur here and there throughout the series.

The weights are most irregular, the heaviest specimen that I have recorded being one with the name *Μητροδωρος*, in Mr. E. T. Newell's collection, which weighs 57.2 grains (3.77 grammes), and the lightest one with *Εὐξείνος*, from Messrs. Rollin and Fenardent's stock, which is less than half that weight, or 27.8 grains (1.80 grammes). The irregularity is so great that we may fairly conclude that, unlike type No. 56, and to a certain extent No. 62 as well, no particular weight standard was aimed at in this series.

No. 68. These small coins, as may be seen from the specimen illustrated [Pl. XI. 20], are of similar style and fabric to the preceding, the flans being thick

⁹⁷ The four-sided grave-stele from Chios in the Altes Museum at Berlin, Nordsaal (V), No. 766A, bears the name *ΜΗΤΡΟΔΩΡΟΣ ΘΕΟΓΕΙΤΟΝΟΣ* in these identical letters. The monument is of good Hellenistic work, but beyond that affords no criterion of date.

and the die-position varied, though none of the names corresponds and the design is different. It will be noted, too, that there is a great similarity between the poise of the Sphinx's head on the coin just alluded to and on the drachm with ΖΗΝΙΣ [Pl. XI. 16], while its wing is of the type peculiar to the drachms described under No. 66 γ and δ. On the whole the attribution seems justifiable, and the coins certainly form a class by themselves. They are decidedly uncommon.

Ἀντικλῆς being a Chian name⁶⁸ has encouraged me to prefer it as a restoration for ΑΝΤΙΚΑ - to Ἀντικλείδης or Ἀντικλῆς. The Ἀργεῖος now met with cannot be the same magistrate as the one recorded under type No. 62 α, but the drachms of type No. 66 β, upon which the name also occurs, might very well be the contemporaries of this bronze issue. Though the name on the little coin in Mr. E. T. Newell's Collection is illegible, enough remains of the letters to show that it is a different name from any of the others recorded under this type, and it is tempting to read into it some derivative of Hector, the name of one of the ancient kings of Chios.

The lettering is difficult to describe in its general characteristics, but there are no unusual forms to be noted.

The weights are, if anything, higher than in type No. 65.

J. MAVROGORDATO.

⁶⁸ A son of Theocritus the Chian sophist was so named (Arrian, *An.* iv. 13. 4).

(To be continued.)

APPENDIX

List of magistrates' names belonging to coins of Period IX, divided into their two main groups, and showing the denominations on which they occur.

190-133 (?) B.C.

	tetradrachm.	drachm.	large bronze.	small bronze.
Ἀγγελίσκος . . .	—	61	—	—
Ἀλκιμαχοί . . .	60	63 a	—	—
Ἀντιφῶν . . .	60	—	—	—
Ἀπολλ[ανίδης] . .	—	—	—	65
Ἀργαῖος . . .	—	—	62 a	—
Ἀριστόμ[αχος] . .	—	—	62 a	65
Ἀστιάσιοι . . .	—	—	62 a	—
Γνώσις . . .	60	—	62 a	—
Δημήτριος . . .	—	—	62 a	—
Διόγνητος . . .	60	—	—	—
Δωρόθεοι . . .	—	63 a	—	—
Ἑρμάνα[ξ] . . .	—	—	—	64 & 65
Ἑστιάσιοι . . .	—	63 a	—	—
Εὐκλείων . . .	60	—	—	—
Εὐκλής . . .	60	—	—	—
Ζηνόδοτος . . .	60	—	—	—
Ζήνων . . .	—	63 a	—	—
Ἠγέμων . . .	—	—	62 a	—
Ἡράκλειτος . . .	60	—	—	—
Ἡρόστρα[τος] . .	—	—	62 a	—
Θιόδα[ρος] . . .	—	—	—	65
Θιόδοι . . .	59a (?) & 59β (?)	—	62 a	—
Ἰερίσιοι . . .	—	—	62 a	—
Καννασίαν . . .	—	—	62 β	—
Κηφισίδης[ς] . . .	—	—	62 a	—
Κράτιων . . .	60	—	—	—
Κύλλαροι . . .	—	—	62 a	—
Λάμπροι . . .	—	—	62 a	—
Λάσαν . . .	60	—	—	—
Λεωμίδων . . .	—	61	62 a	64
Λυσικ[ράτης] . .	—	—	—	65
Μενελάτης . . .	60	—	—	—
Μενεσθεύ[ς] . . .	59 β (?)	—	62 β	—
Εἰνων . . .	60	—	—	—
Εὐδοτος . . .	60	—	—	—
Οἰκονομ[ίδης] . .	60	—	—	—
Πολύανθοι . . .	—	—	62 a	—
Σαθύμ[τος] . . .	—	—	—	65
Στάφυλ[ος] . . .	—	—	62 a	65
Σώστρατ[ος] . . .	—	—	62 β	—
Τηλέμαχ[ος] . . .	—	—	62 a	—
Τίμωνδρος . . .	—	—	62 a	65
Τιροδάμας . . .	60	—	—	—
Τιροκλή[ς] . . .	—	—	62 a	—
Τίμων . . .	60	—	—	—
[Φ]αῖνος . . .	—	—	—	65
Φίλιπποι . . .	60	—	—	—
Φοῖνιξ . . .	—	—	62 a	—
Χάρης . . .	60	—	—	—

133 (?) - 84 B. C.

	<i>tetradrachm.</i>	<i>drachm.</i>	<i>large bronze.</i>	<i>small bronze.</i>
Ἀθηναῖον . . .	—	—	67	—
Ἀσχαίνης . . .	—	—	67	—
Ἀνδράναξ . . .	—	66 α	—	—
Ἀντικλ[ῆς] . . .	—	—	—	68
Ἀπελλᾶς . . .	—	66 β	—	—
Ἀπελλῆς . . .	—	66 γ	67	—
Ἀπολλων[ίδης] . . .	—	—	67	—
Ἀργεῖος . . .	—	66 β	—	68
Ἀρτεμῆς . . .	—	—	67	—
Ἀρτεμίδωρος . . .	—	66 β	67	—
Γοργίας . . .	—	66 δ	67	—
Διρεύλος . . .	—	66 γ	—	—
Δημοκλῆς . . .	—	—	67	—
Δημοκρά[της] . . .	—	—	67	—
Διομήδης . . .	—	—	67	—
Ερμόφρατας . . .	—	66 β	—	—
Εὐξένος . . .	—	—	67	—
Ζήνιος . . .	—	66 β	—	—
Ζηρόδωρος . . .	—	66 δ	—	—
Ἡλιδόωρος . . .	—	66 β	—	—
Ἡραῖος . . .	—	—	—	68
Ἡροκράτ[ης] . . .	—	—	—	68
Θεύμων . . .	—	66 ββ	—	—
Κόρανος . . .	—	66 γ	—	—
Κλείδης . . .	—	—	67	—
Μανεκλῆς . . .	—	66 γ	—	—
Μηνογένης[ς] . . .	—	—	67	—
Μηνόφιλος . . .	—	—	67	—
Μητιάς . . .	—	66 β	—	—
Μητροδωρος . . .	—	66 γ	67	—
Μίκαλος . . .	—	—	67	—
Μιλτιάδης . . .	—	—	67	—
Ξάνθιππ[ος] . . .	—	—	67	—
Στάφυλος . . .	—	66 γ	—	—
Στρατόν[ιος] . . .	—	—	67	—
Τρύφαν . . .	—	—	67	—
Φαναγό[ρη] or -ρος]	—	—	—	68
[Ε]Κ. ΟΔ -- .	—	—	—	68

The figures, 59-68, indicate the types under which the coins are described above.

XIII.

MORE CHRONOLOGY OF THE SHORT-CROSS PERIOD.¹

(See PLATE XII.)

THE *Numismatic Chronicle* for 1910 contains an able paper by Mr. G. C. Brooke on this subject. In that paper, dealing with dates, Mr. Brooke has made many corrections and has brought forward many new and more correct transcripts of writs which were quoted and used, when the coinage in question was being investigated and classified, chiefly by our late President, Sir John Evans.

Since 1910 no paper relating to this coinage has appeared in the pages of the *Chronicle*, and it would therefore seem fit that a *résumé* of this subject should find some place in the treasury of numismatic lore of this period.

It is now some years since study of this coinage convinced me that Sir John Evans's classification

¹ The thanks of the Editors are due to the Council of the British Numismatic Society for kind permission to reprint from the *British Numismatic Journal* the tables which accompany this paper (pp. 368-77). The type used in these tables is purely conventional, and must not be regarded as representing the exact forms of the letters. As regards the table of Classes VI and VII, some subdivision of the classification, in regard to the form of the bust, has been attempted. In the *a* column the bust approximates to that in the class preceding; Class VII shows a progressive diminution of the bust.

needed some amplification and subdivision, and as Mr. Brooke has known and kindly approved of my suggestions on the subject, it is thought that some reference might be usefully brought before you.

In starting the re-classification, I endeavoured as far as possible to forget Sir John Evans's arrangement, and I placed coins together which looked most alike; then, by tracing similarities on what were otherwise dissimilar coins, and by examining the moneyers' names which appear on the coins, to rearrange them in groups. The result of this combination has been a classification closely resembling Sir John Evans's grouping, but subdividing his Class II into at least three distinct types and producing three new groupings from a combination of his Classes III and IV, and, lastly, forming a new class from coins culled from his Classes III, IV, and V.

The old classification was carried out almost entirely on the basis of the number of pearls in the king's crown and the number of curls constituting side-locks of the king's hair. While these features still receive due consideration, it is now felt that an odd pearl or so, or an additional curl, or an unusual pellet is not sufficient to separate coins which are otherwise alike in style.

The general design of the coinage is too well known to require description, but brief details of the differences shown by the various classes are necessary for the correct understanding of the chronological data. The full story is told in the *British Numismatic Journal*, vol. xi. Representative specimens are illustrated here in **Pl. XII.**

Class I. Well-spread, well-struck coins, generally five pearls in the crown, and usually two distinct curls

on the dexter side of the king's head and five on the sinister side. A pellet between the king's name and his title. This class is subdivided into—

Class I *a*, which shows a square **Ɔ** or **E**. Often an outer circle with large pellets at intervals.

Class I *b*. Square letters are absent, the dot in the legend nearly always present, and the pearls still distinct and five in number.

Class I *c*. Coarser examples of the same type. The dot frequently absent, and the pearls and curls not so distinct.

Class II. A smaller and rounder bust. The eyes appear to be struck in as two large pellets. Coarse lettering. Subdivided into—

Class II *a*. The pearls are still five in number but not very distinct, many curls on each side joining on to the king's beard. No dot in the obverse legend. The Lichfield type.

Class II *b*. A somewhat similar bust, many pearls strung together in the crown. The curls three on either side of the head. This class often shows a colon on either side of **ON** on the reverse.

Class III. A rather better style of bust with bushy side-locks, the curls sometimes containing pellets. A well-marked pointed beard. The pearls in the crown are many, small, and joined together.

Subdivisions. Class III *a* and Class III *b* (which shows a somewhat smaller bust on the same lines). The lettering does not materially differ from that found on Class II.

Class IV. Uncouth coins without any relief about the bust. The pearls joined, they may be many or few. The curls usually an equal number of from one

to three on each side. The beard indicated by a few indefinitely placed pellets. The eyes commonly represented by annulets. The lettering is careless, and the serifs, which in this class are very marked, are often carelessly struck in, leaving the strokes, which they are supposed to finish, to appear beyond them. On what will be shown to be the latest members of this class the *S* whenever it appears is reversed, thus 2.

These four classes taken together show almost progressive deterioration except for a slight momentary improvement in Class III.

Class V. Smaller better-struck coins. As a rule five distinct pearls in the crown, and two or three curls on each side of the head. A well-formed bust with generally a pointed beard and marked evidence of a collar round the king's neck.

Subdivisions. Class V *a*. Mint-mark cross pommée. The 2 always reversed. The *Q*, *G*, and *R* sometimes of an ornamental character. The *x* in *Rex* is a cross of four equal limbs meeting at right angles and straight-sided:—✕. The pearls and curls vary a little in number.

Class V *b*. The same style, but the mint-mark is a cross pattée. The *S* is never reversed.

Class V *c*. Coins of the same general type again, but not so well made. The bust shows a somewhat squarer, less distinct, beard. The *x* in these is formed of four wedges, somewhat as a St. Andrew's cross ✕.

Class VI. The bust is narrower and less well designed, and the curls frequently commence at the level of the crown, which still contains five pearls. The *x* in *Rex* is formed as a quatrefoil, ◆. Ornamental letters again appear on this class, but besides

the \mathcal{Q} and \mathcal{H} , as in Class V *a*, all the letters composed of straight strokes may have these duplicated.

The letters on Class VI are longer than on any other class of the coinage, and are made to look longer still by the close apposition of the uprights in such letters as M and N.

Class VII. The coins comprised in this class appear to be slightly smaller in diameter than in any other class. The designing is poor, and many specimens are very badly struck. The bust is a small round one with a square beard, and is usually set so low down that the inner circle generally cuts off the chin. There is hardly ever any appearance of a collar. The letters are markedly shorter than those on Class VI. The almost invariable dot either side of OM on the reverse, which practically always appears in all the earlier classes, is now omitted. There are often, however, dots in the reverse legend between the letters of either the moneyers' or mint-names, thus T \mathcal{E} IR·RI, C \mathcal{A} NT· \mathcal{H} , which appears to be characteristic of this class only.

Class VIII. This class is perhaps the worst designed and the worst executed of the whole short-cross coinage. The bust on what are evidently the latest specimens is degraded in the extreme, though the five pearls still appear, and an even number of curls, two or three on each side, are still present. The cross pattée mint-mark is still to be observed on the reverse of the earlier examples, but later we find a reversion to the cross pommée of Class V *a*. The x in Rex is first of the quatrefoil variety used in Classes VI and VII, then a cross pommée, and finally an x closely resembling the same letter found on the early long-cross coins, one limb slanting from left to right, and the

other represented by a comma on the right and an inverted comma on the left. There are often one, two, or three pellets separating the words on either side. The letters are short and very broad.

The series of short-cross coins as thus planned exhibits with two exceptions a most gradual degradation from class to class, the exceptions being a slight improvement in Class III *a* and a most marked improvement in Class V *a*. Mules are frequent between most of the consecutive classes, except between IV and V.

We are now perhaps in a position to assign some chronological order to the various classes.

Class I *a* gives us the name *FILÆISORÆR*, which is identified as that of Philip Amary, the engraver of Tours who superintended the first issue of the coinage. Chroniellers vary slightly in date between 1280 and 1282. The date, however, can be definitely settled by an entry I have found in the Pipe Roll, 26 Henry II: 'Et Phillipo Aimer xxxiiii l. et iis. et viid. ad faciendum cambium Regis apud Lond.'

This date therefore may be taken for the appearance of Class I *a*. A few of the moneyers issuing it were evidently at work before, as their names appear in the lists of the Tealby type coins of Henry II.

Nine years later, in 1189, the first year of Richard I, occur the oft-quoted writs to Archbishop Baldwin of Canterbury and to Bishop Hugh of Coventry granting dies respectively at Canterbury and Lichfield. The Lichfield coin, still unique, is what I describe as Class II *a*. Coins of London, Canterbury, &c., precisely resemble it. This class, therefore, must be considered to have been begun about this time. Mr. Brooke, in his paper, thought rather differently, his views then

being influenced by the old classification which attributed the Lichfield coin to Sir John Evans's Class I.

The various members of the class could not have been long in issue, as they are few in number, and in 1194, according to Trivet, quoted by Mr. Brooke, there was something of the nature of a re-coinage. This statement, combined with the fact that in 1196 the privilege of coinage was restored to the Bishop of Durham after having been in abeyance for many years (Longstaffe, *Num. Chron.*, 1863), and that the earliest Durham coin is to be attributed to Class III *b*, enables us to give Trivet's date, 1194, to the slightly improved Class III. Sir John Evans and Mr. Brooke both quote the Pipe Roll of the fourth year of John, as evidence of the working of Lefwine, moneyer of Lincoln, at the time of that Pipe Roll. Mr. Brooke showed the corrected date of the roll to be 1201-1202. The latest coin we know of Lincoln bearing this moneyer's name is of Class III *b*, which was presumably in issue in 1196. We do not know how long this class went on or when it was superseded or became Class IV by a process of decay, but the coins became gradually worse until matters reached a crisis in 1205, when the Annals of Waverley, quoted by Mr. Brooke, state *Facta est turbatio magna in regno per tonsuram sterlingorum*. Several chroniclers under the year 1205 refer to a re-coinage of the money, and Mr. Andrew pointed out a previously unnoted passage in the continuation of Florence of Worcester, stating 'Moneta olim A.D. MCLVIII facta hoc anno (1205) est renovata'. Mr. Brooke, under this year, quoted the writs bestowing a coinage on Chichester. He also showed clearly that all the

supposed Chichester coins of early issue (Sir John Evans's Class II) were to be attributed to Canterbury or York. This leaves Chichester to begin with Class V, marked with the cross pommée. These evidently, therefore, were of the new coinage referred to by the chroniclers as made in 1205, and this type is the only one which could have any claim to the name of a new coinage, as it is the best and most carefully worked in the whole series. I have placed it to Class *V a*. The old coinage, late Class IV, which it replaced is easily pointed out, as it bears the reversed 2 characteristic of Class *V a* on every coin in which the same moneyer struck in both classes at whatsoever mint he struck.

Class *V a* alone can have been in use only a very short time, as mules between it and Class *V b* are frequent, and it was only struck at ten of the sixteen mints of which the moneyers were summoned to the great inquisition of moneyers in January, 1208, all of whom struck coins of Class *V b*.

Class *V b* gradually becomes Class *V c*, the only differences observable on the latter class being a slight degradation in the bust and the occurrence of the new St. Andrew's cross X.

This letter, however, is perhaps of more importance than it would seem until it is pointed out that the precise form occurs on the Irish coinage of John, which was made in England and was ordered in 1210. The lettering on this is the same as on the English coinage, and the bust, except for differences in the crown, is of the Class *V* type. We may therefore feel satisfied that in 1210 Class *V c* with its curious X was in issue in England.

We cannot be certain how long it took to evolve

Class VI from Class V c, but we do know that whereas ten mints struck in Class V c, viz. London, Canterbury, Durham, Ipswich, Lincoln, Northampton, Norwich, Bury St. Edmunds, Winchester, and York, only six struck in Class VI, no coins of Ipswich, Lincoln, Northampton, and Norwich being known of this class. The reason for this is now plain from three entries on the Patent Roll for the year 1218. The first two place the mints of London, Durham, Bury, Winchester, York, and Canterbury, which latter has an entry to itself, all under the rule of William Marshall, junior (afterwards Earl of Pembroke). The third states that that place in Northampton in which the mint of Northampton was situated was handed over to one Randulf of Rouen.

It is thus clear that Class VI must be placed to the year 1218, when the only six remaining mints were placed under William Marshall's rule.

In 1222 we get the oft-quoted document appointing Ilger, Rauf, Elis, and Terri as *custodes monetæ*, a post of which we have no accurate knowledge. It has also been pointed out that whereas the names Ilger and Rauf appear on coins of my Classes V and VI (Evans, Class III), all four are found on the next Class VII (Evans, V). We have no evidence of the dates of appointment of any of these men as moneyers, but clearly Ilger and Rauf were coining before Elis and Terri, and all four duplicated the offices of *custos* and moneyer. Seemingly changes were made at the mint at this time, because the Patent Roll for 1223 gives us a writ headed *De prohibicione Cambii* and addressed to the authorities of the towns of Ypres and Ghent, explaining that the king had ordered that

no coinage should take place at mints other than those of London and Canterbury. Probably a similar declaration was made in 1222 for the benefit of the king's English subjects at the time of the appointment of the new *custodes*. Class VI, therefore, could not have run for more than five years at the outside, and as regards the mints of Winchester and York, for less time, as no coins with the ornamental letters of Class VI are known, nor did they coin subsequently until they were reopened for the production of long-cross coins in 1248. London, Canterbury, and Bury issued all varieties of Class VI, and I suspect the absence of coins of Durham with ornamental letters will be rectified in the course of time, as both this and the three mints just named all issued coins of Class VII.

I suggest that this Class VII came into being as the result of the assumed king's order of 1222. It is not surprising to find activity on the part of Durham and Bury after this date, as these two mints were ecclesiastical and were probably as such outside the king's jurisdiction.

Class VII appears to have been in issue for a long time, and this is shown not only by the multitude of surviving coins in those of this class, but by a few entries on the rolls referring to the appointments or deaths of moneyers.

William the king's tailor received a die at Canterbury vacant by the death of Simon Chick in 1230. Willem Ta's coins are all of Class VII.

The Close Roll for 1235 states that Thomas de Valentine, a moneyer of Canterbury, was then recently dead. The coins reading **TOMAS ON GANT** are all of Class VII.

Further entries in the Close Roll of 1237 tell us that Johannes Turce, moneyer of Canterbury, and Richard de Neketon of London were then dead. We get many coins of both these moneyers in Class VII, and certainly none later signed RICHARD, so that we must conclude that Class VII was still in issue at the time of their deaths.

The evidence for dating the advent of Class VIII is slight, and it is possible that it attained its full ugliness of type gradually. Among the London and Canterbury coins of Class VII are some signed Nichole. A writ of 1242 appoints Nicholas de Sancto Albano to a high post in the two mints just mentioned. He, however, appears to have been acting as a moneyer before this time, as some of his coins at both mints are exactly like coins of moneyers reported dead in 1235; we also know that he is mentioned as a moneyer in early long-cross times, and that he died about 1253. All stages of coins from true Class VII to true Class VIII were issued at both mints by Nichole. Now in endeavouring to fit into the series the coins of the mint of Rhuddlan, which were not made with the same irons as the English coins, I was struck by the resemblance in appearance and mint-marks chiefly to Class VIII, and Mr. Andrew very kindly undertook a search of the Welsh chronicles. He happily found evidence¹ that the year 1240 was the first in which Rhuddlan was in a position to coin money of an English type, copied of course from money in use at that time. We may therefore safely date Class VIII to some time after 1237 (death of Richard de Neketon) and before 1242. The great interest about this class

¹ *Brit. Num. Journ.*, Ser. II, vol. i, p. 88.

is that, excepting the Rhuddlan coins, it was only struck at the three mints of London, Canterbury, and Bury, and that on the latest varieties at each of the three mints we get the names of those moneyers whose names alone appear on the earliest long-cross coins of the corresponding mints, the only mints which started the long-cross coinage, William and Nicholas at Canterbury, Nicholas in London, and John at Bury St. Edmunds.

From the foregoing a summary of the dates given to the various coins can be easily made:

Class I. 1180 to *circa* 1189.

Class II. *Circa* 1189 (Lichfield writ) to 1194.

Class III. 1194 (Trivet's statement) to well beyond 1196 Durham records.

Class IV. Follows immediately and ends 1205.

Class V a. 1205. Chichester writs.

Class V b. 1205 to after 1208. Inquisition of moneyers.

Class V c. *Circa* 1210 (Irish coinage) to 1218.

Class VI. 1218 (William Marshall writs) to 1222.

Class VII. 1222 (appointment of Ilger and others as *custodes*) to 1237, death of R. de Neketon, and probably later.

Class VIII. Probably 1242 (Rhuddlan and appointment of Nicholas) to 1247.

It is clear, therefore, that the coinage was a continuous one, and that the succession of kings did not interfere with its continuous issues, which were carried on independent of the change of the sovereign's name.

L. A. LAWRENCE.

THE TYPES STRUCK AT THE VARIOUS MINTS.

Mints.	Classes.														
	I.			II.		III.		IV.	V.			VI.	VII.	VIII.	
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	—	—	—	
London ...	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Canterbury ...	...	...	...	x	x	x	x	x	x	x	x	x	x	x
St. Edmundsbury ...	...	...	...	...	...	...	...	...	...	x	x	x	x	x
Durham ...	...	...	...	...	...	...	x	x	x	x	x	x	x	
York...	x	x	x	...	x	x	x	x	x	x	x	x			
Winchester ...	x	x	x	x	...	x	x	...	x	x	x	x			
Lincoln ...	x	x	x	x	...	x	x	x	x	x	x				
Northampton ...	x	x	x	...	...	x	...	x	...	x	x			
Norwich ...	...	x	x	...	...	...	x	x	x	x	x			
Exeter ...	x	x	x	...	...	...	x	...	x	x				
Oxford ...	...	x	...	x	...	...	...	...	...	x	...	...	1 x ?	
Carlisle ...	x	x	x	...	...	x	x	x	...	x				
Lichfield ...	...	...	...	x										
Shrewsbury ...	...	...	...	...	...	x	...	x						
Chichester ...	...	...	...	...	...	...	...	...	x	x				
Ipswich ...	...	...	...	...	...	...	...	...	x	x	x			
Lynn ...	...	...	...	...	...	...	...	...	...	x				
Rochester ...	...	...	...	...	...	...	...	...	...	x				
Wilton ...	x	x													
Worcester ...	...	x												

¹ A coin of very doubtful origin.

THE MONEYS, THEIR TYPES AND MINTS.

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
LONDON.																	
TIMAR . . .	...	x	x	x	x	x	x	x									
FILTIMAR . .		xx															
PIARAS . . .	x	x	x	x													
PIARAS M . .	x	x															
RANDVL } . .	x	x															
RTVL } . . .	...	x	x	x													
HENRI ¹ . . .	x	x	...	...	...	...	...	x	xxx								
HENRI PI . .	x	x							|								
WILLIAM ¹ . .	xxx	x	...	x	x	x	x	x	xxx	x?	...	...	...	...	...	...	x?
JOHAN . . .	x	x	...	...	...	...	...	...	xxx		...	...	...	...	...	...	x?
ALVIN . . .	...	x	...	...	...	...	...	x									
ALVIN V . . .	...	x															
ALWARD . . .	...	x															
GODARD . . .	...	x															
OSBAR . . .	...	x															
REINOLD . . .	...	x															
IAFREI . . .	...	x	x														
DTVI . . .	...	x	x	x													
GILBERT . . .	...	...	x														
GOLDWINA . .	...	...	...	...	...	...	x	x									
STIVANA . . .	...	...	x?	x	x	x	x	x									
RICTRD ¹ . . .	...	...	x?	x	x	x	x	x	xxx								
FVLKA ¹ . . .	...	...	...	...	...	...	x	x	xxx								
ANDRAV . . .	...	...	...	...	...	...	...	...	x								
ALEXANDER . .	...	...	...	...	...	...	...	...	x								
ARNVD . . .	...	...	...	...	...	...	...	...	x								
ADAM . . .	...	...	...	...	...	...	...	...	x	x	...	...	x	x	x	x	x?
BENIT . . .	...	...	...	...	...	...	...	...	x	x	...	...	...	...	...	...	x?
ILGER ² . . .	...	...	...	...	...	...	...	...	x	x	x	x	x	x	x	x	

¹ Used the letter S reversed in Class IV, and ornamental letters in Class V.² Used ornamental letters in Class VI.

THE MONEYS, THEIR TYPES AND MINTS—*continued.*

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
<i>LONDON—cont.</i>																	
RÆNER.	x	x	x					
RICARD B	x	x						
RICARD T	x							
WILLELM B	x	x						
WILLELM L	x	x						
WILLELM T	x	x						
ÆBEL ¹	x	x	x	x	x	x		
RÆVF ¹	x ²	x	x	x	x	x		
RÆVLF	x	...	x	x	x	
WÆLTER	x	x	...	x			
PIRÆS	x	...	x			
ÆLIS }	x	x	x	
ÆELIS }	x			
GIFFRÆI	x			
LÆDVLF	x	
TÆRRI	x	x	
RICARD																	
de Neketon	x	
NICHOLÆ	x	x	x	x
<i>CANTERBURY.</i>																	
MÆNIR	x	x	x	x	x									
RÆINTLD }	x	x	x										
RÆINTVD }	x									
VÆRD	x	x	x	x									
ÆÆRNTVD	x	x								
ÆÆRNTVD	x	x	x						
GOLDWING ²	x	x	x	x	x	x	x	x						

¹ Used ornamental letters in Class VI.² Used the letter S reversed in Class IV.

THE MONEYERS, THEIR TYPES AND MINTS—*continued.*

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
CANTERBURY— <i>cont.</i>																	
hVθ ¹	×	×	×	×						
ROBERT ²	×	×	×	×	×	×	×	×	×	...	×	×		
IOθAN ⁴	×	×	×	×	×	...	×	×	...	×
STANVθL ⁴	×	×	×	×	×	×	×	×
SIMVN ⁴	×	×	×	...	×	×	×	×	×	
SIMON	×	×	×	×	?	×			
IOθAN B	×	×							
IOθAN M	×	×							
ANDRθV	×								
WALTER	×	...		×	×	×	×
hENRI ³	×	×	×	×	×	×
hVN	×	×				
IVN	×	×		
IOθN	×	×	×	...	×	×	×	
ROGER	×	×	×	×	×	×
ARNOLD	×					
RAVF	×							
TOMAS	×	...	×	×	×	
STANVN	×	×	×	
IOθN θHID	×	×	
IOθN FR	×	
NORMAN	×		
OSMVND	×	×	×	
ROBERT VI	×	×	×
ROGER OF R	×	×	×	
WILLθM TA	×	
WILLθM	×	×	×
NICHOLθ	×	×	×

¹ Used ornamental letters in Class V.² Used S reversed in Class IV, and ornamental letters in Class V.³ Used ornamental letters in Class VI.⁴ Used S reversed in Class IV, and ornamental letters in Class VI.

THE MONEYS, THEIR TYPES AND MINTS—*continued.*

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
CARLISLE.																	
ALVIN . . .	x	x	x	...	...	x	x	x									
TOMAS	x							
CHICHESTER.																	
PIERIS	x							
RTVF ¹	x	x							
SIMON	x	x							
WILLIAM	x							
DURHAM.																	
EDM	x										
ALVIN	x	x									
PIERIS ²	x	x	x	x	x	...	x			
EXETER.																	
TSKETH	x															
IORDAN . . .	x	x															
OSBAR . . .	x	x	x														
RTVL	x															
ROGER	x															
RICTRD	x	x	...	...	...	x	...	x	x							
GILBERT	x	x							
IOHAN	x	x							
IPSWICH.																	
ALISANDRA	x	x	x						
IOHAN	x	x						

¹ Used ornamental letters in Class V.² Used the letter S reversed in Class IV.

THE MONEYERS, THEIR TYPES AND MINTS—continued.

[illegible]

THE MONEYS, THEIR TYPES AND MINTS—*continued.*

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
NORTHAMPTON—																	
<i>cont.</i>																	
RTVL . . .	x	x															
SIMVND	x															
WALTER . .	x	x	x	x	...	x											
RTNDVL	x	...	x									
ROBARD	x	...	...		x							
ROBARD T		x							
ADAM		x	x						
NORWICH.																	
RAINTLD	x	x	...	...	...	...	x	x								
RAINTVD	x	x	x							
GEFRAI	x	x						
WILLGLM	x	...	...	...	x	...	x									
IOHTN	x	x	x	x						
OXFORD.																	
ASKATIL	x															
IGFRAI	x															
OWEIN	x															
RODBART	x															
STGTR	x															
RIGTRD	x	...	x													
WILWING	x							
HENRI	x							
MILES	x							
HEGIS ¹	x			

¹ The workmanship of this coin is very doubtful.

THE MONEYS, THEIR TYPES AND MINTS—*continued.*

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
RHUDDLAN.																	
(See end of list.)																	
ROCHESTER.																	
ALISANDRA .	...	...	...	...	...	...	...	...	...	x							
LVNFRGI . .	...	...	...	...	...	...	...	...	...	x							
ANDRŌV . .	...	...	...	...	...	...	...	...	...	x							
SHREWSBURY.																	
IVG . . . .	...	...	...	...	...	...	...	x									
WILLŌM . .	...	...	...	...	...	x											
ST. EDMUNDS- BURY.																	
FVLKŌ . . .	...	...	...	...	...	...	...	...	x	x							
RAVF ¹ . . .	...	...	...	...	...	...	...	...	...	...	x	x	x				
WILLŌLM . .	...	...	...	...	...	...	...	...	...	...	...	...	x	x			
NORMAN . .	...	...	...	...	...	...	...	...	...	...	...	...	...	x	x		
SHVND . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	x		
IOHAN . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	x
WILTON.																	
OSGAR . . .	...	x															
RODBERT . .	x	x															

¹ Used ornamental letters in Class VI.

THE MONEYERS, THEIR TYPES AND MINTS—*continued.*

[illegible]

THE MONEYS, THEIR TYPES AND MINTS—*continued.*

	I.			II.		III.		IV.	V.			VI.		VII.			VIII.
	a.	b.	c.	a.	b.	a.	b.	—	a.	b.	c.	a.	b.	a.	b.	c.	—
<i>YORK—cont.</i>																	
ALAN	x															
GERTARD	x															
WILLIAM	x											x				
DAVID ¹							x	x	x							
NICOLA ¹							x	x	x	x						
JOHN								x	x			x				
RANFVD									x							
TOMAS									x			x				
PARS												x				
<i>Irregular.</i>																	
<i>RHUDDLAN.</i>																	
HENRIQVS																x
HALLI															x	x
SIMON															x	x
TOMAS ²																x

¹ Used the letter S reversed in Class IV.

² Approximately Class VIII.

XIV.

A FIND OF ENGLISH COINS AT RIBE, DENMARK.

On October 3, 1911, a farmer, Christian Sørensen, in Ladegaardsmarken (also called Østermarken), Ribe, made a find of coins. They were found about half a metre under the surface of the earth, and were deposited in a little black earthen vessel. The hoard comprised in all 1,257 pieces, which weighed 1,797 grs., besides 5 fragments of silver spoons, 5 lumps of silver, and a little silver bar. The find was—owing to the finder's intelligent care—safely delivered to the National Museum, Copenhagen.

The time of the burial of the hoard is seen from the fact that the main part of the coins—1,201 pieces—were English "short-cross" pennies, including even the last class of these coins; that no "long-cross" pennies appeared in the find; and that, finally, a *gros marseillais* of Count Charles of Provence (1246-85) was among the continental coins of the find. It is therefore most probable that the find was buried before 1248, but after 1246. It is an obvious conclusion to connect the hoard with historical events in the contests between the brothers King Eric Peovpenning and Duke Abel of Southern Jutland. On April 28, 1247, Duke Abel conquered Ribe, and made the Bishop and the royal children prisoners, but on June 3 of the same year King Eric regained the

town.¹ Ribe was the most important commercial town of the time in Denmark. At Ribe horses and bullocks were exported, and cloth, wine, and other products of western Europe were imported. On the site of this find there has previously been found a rose noble of Edward IV, but beyond this there is no evidence that the foreign merchants had their stores just here.

The contents of the find appear from the following survey (arranged after Mr. L. A. Lawrence's classification).

G. GALSTER.

¹ Petrai Olai *Annales, Script. Rer. Dan.*, i, p. 184:

"1247 4 Kal. Maji Dux Abel cepit civitatem Ripensem, in qua captus est Dominus Esgerus episcopus eiusdem civitatis et multi milites et pueri Domini regia. Eodem anno, 3tio Nonas Iunii, rex Ericus eandem civitatem rehabuit."

SHORT-CROSS PENNIES

CLASS I b.

Exeter.

<i>Obverse.</i>		<i>Reverse.</i>	
1. hENRICVS · R|EX		ROGAR · ON · AXAD	1

London.

2. hENRICVS · R|EX		TMAR · ON · LVND	1
3. "		TLTIN · ON · LVND	1
4. "		PIARIS · M · ON · LVN	1
5. "		RHINTLD · ON · LVND	1

Northampton.

6. hENRICVS · R EX		RTVL · ON · NORRT	1
7. "		WTLTAR · ON · NOR	2

Wilton.

8. hENRICVS · R EX		RODBART · ON · WIL	1
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CLASS I c.

London.

9. hENRICVSR EX		FIL · TMAR · ON · LVN	2
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Winchester.

10. hENRICVSR EX		OSBARN · ON · WIND	1
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CLASS II a-b or III a-b.

Canterbury.

11. hENRICVSR EX	¹	ROBERT · ON · ATN	1
12. "	²	VLARD · ON · ATN	1

¹ 3-3 curls, 7 pellets.² 3-3 curls, 9 pellets.

York.

<i>Obverse.</i>		<i>Reverse.</i>	
13. hENRIQVSR|OX		TVRKIL · ON · QVQR	1

London.

14. hENRIQVSR|OX		RIQTRD · ON · LVND	1
15. "		RIQTRD · ON · LVN	2
16. hENIQVSR|OX		RIQTRD · ON · LVI	1
17. hENRIQVSR|OX		STIVENH · ON · LVN	1
18. hENRIQVSR|OX		"	1
19. hENRIQVSR|OX		WILLHLM · ON · LVND	1
20. hENRIQVSR|OX		WILLHLM · ON · LVI	1
21. hENRIQVSR OX ¹		WILLHLM · ON · LV	1

Northampton.

22. hENRIQVSR OX		RTNDVL · ON · NOR	1
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Winchester.

23. hENRIQVSR OX		WILLHLM · ON · WIN	1
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CLASS IV.

Canterbury.

24. hENRIQVSR OX ²		HEINIR · ON · QTN	1
25. hENRIQVSR OX ²		REINQVD · ON · Q	1
26. hENRIQVSR|OX ²		ROBERD · ON · QTN	1
27. hENRIQVSR OX ³		VLTRD · ON · QTN ⁴	2
28. hENRIQVSR OX ³		WILLHLM · ON · QTN ⁵	1

York.

29. hENRIQVSR OX		HIDLE · ON · QVQR	1
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London.

30. hENRIQVSR OX		hENRI · ON · LVND	1
31. hENRIQVSR OX ⁶		hENRI · ON · LVND	1

¹ 5 pellets, many curls.² More than one curl, 7 pellets.³ Certainly not VIII.⁴ 1-1 curl, 7 pellets.⁵ Of the same die.⁶ 1-1 curl.

CLASS Va.

*Canterbury.**Obverse.**Reverse.*

32. hēnriqv̄sr|ēx	GOLD · WINE · ON · A	1
33. hēnriqv̄sr|ēx	hve · ON · dāntē	1
34. hēnriqv̄sr ēx	IOh̄TN · ON · dāN:	1
35. hēnriqv̄sr ēx	IOh̄TN · ON · ēTN	1

Exeter.

36. hēnriqv̄sr ēx	IOh̄TN · ON · ēddē	1
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Lincoln.

37. hēnriqv̄sr ēx	KLAIN · ON · NIOL	1
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London.

38. hēnriqv̄sr ēx	hēNRI · ON · LVND	1
39. hēnriqv̄sr ēx	RICTRD · ON · LVI	1
40. hēnriqv̄sr ēx	WILLĒLM · ON · L	1

CLASS Vb.

Canterbury.

41. hēnriqv̄sr|ēx	ARNVD · ON · dT	1
42. hēnriqv̄sr|ēx	GOLDWINE · ON · dT	1
43. hēnriqv̄sr|ēx	GOLDWINE · ON · CT	1
44. "	IOh̄TN · ON · dāNT ¹	2
45. "	IOh̄TN · ON · dāN:	1
46. "	IOh̄TN · ON · dāN	1
47. "	IOh̄TN · B · ON · dT	1
48. "	ROBERD · ON · dāN	1
49. "	SAMVĒL · ON · dāN	1
50. hēnriqv̄sr|ēx	SAMVĒL · ON · dāN	1
51. "	SAMVĒL · ON · dT	2
52. hēnriqv̄sr|ēx	SIMON · ON · dāNT	1

¹ From the same die.

Carlisle.

<i>Obverse.</i>	<i>Reverse.</i>	
53. hENRIdVSR eX	TOMAS · ON · dAR	1

Chichester.

54. hENRIdVSR eX	PIARAS · ON · dIda	1
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Durham.

55. hENRIdVSR eX	PIARAS · ON · dVRa	1
56. "	PIARAS · ON · dVR	2

York.

57. hENRIdVSR eX	dAVI · ON · aVAR ·	1
58. "	dAVI · ON · aVAR	1
59. "	NIdOLa · ON · aVAR	1
60. "	TOMAS · ON · aVR	1

Exeter.

61. hENRIdVSR|eX	GIlaBARD · ON · aD	1
62. hENRIdVSR|eX	IOhAN · ON · aDD	2
63. "	RIdARD · ON · aDD	1

Ipswich.

64. hENRIdVSR eX	KLISANDRa · ON · G	1
65. "	KLISANDRa · ON · G	1
66. "	IOhAN · ON · GIPI	1

Lynn.

67. hENRIdVSR eX	IOhAN · ON · lANa	1
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Lincoln.

68. hENRIdVSR eX	hVa · ON · lIdOLa	2
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London.

<i>Obverse.</i>	<i>Reverse.</i>	
69. HENRICVS REX	ADAM · ON · LVND	3
70. "	ADAM · ON · LVND	1
71. "	ALISANDRA · ON · LV	2
72. "	BENET · ON · LVND	1
73. "	BENET · ON · LVND	1
74. "	FVLRA · ON · LVND	1
75. "	ILGAR · ON · LVND	2
76. "	ILGAR · ON · LVND	1
77. "	ILGAR · ON · LVND	1
78. "	ILGAR · ON · LVND	1
79. HENRICVS REX · X.	"	1
80. HENRICVS REX	RANER · ON · LVND	1
81. "	RANER · ON · LVND	1
82. "	RICARD · ON · LVND	1
83. "	RICARD · B · ON · LV	3
84. HENRICVS REX	RICARD · ON · LVND	1
85. HENRICVS REX	WILLIAM · ON · LVND	1
86. "	WILLIAM · B · ON · LV	2
87. "	WILLIAM · L · ON · LV	2
88. "	WILLIAM · L · ON · LV	1
89. "	WILLIAM · ON · L · LV	1
90. "	WILLIAM · T · ON · LV	1
91. "	WILLIAM · T · ON · LV	1
92. HENRICVS REX	"	1
93. HENRICVS REX	LONDACIVTS ¹	1

Northampton.

94. HENRICVS REX	ROBERT · ON · NOR ²	2
95. "	ROBERT · T · ON · NOR ²	2
96. "	ADAM · ON · NOR	2

Norwich.

97. HENRICVS REX	GIFRAI · ON · NOR	1
98. HENRICVS REX	GIFRAI · ON · NOR	1
99. HENRICVS REX	GIFRAI · ON · NOR	1

¹ With a rose in the crown. Imitation?² Of the same die.

Norwich (continued).

<i>Obverse.</i>	<i>Reverse.</i>	
100. hĒNRICVSR|ĒX	IOhAN · ON · NORY	2
101. hĒNRICVSRĒ|X	IOhAN · ON · NOR	1
102. hĒNRICVSR|ĒX	RĒNĀVD · ON · NĒR	2

Oxford.

103. hĒNRICVSR|ĒX	ÆILWINĒ · ON · ODS	1
104. "	ÆILWINĒ · ON · OD	1
105. "	hĒNRI · ON · ODSĒ	1
106. hĒNRICVSRĒ · X ·	MILES · ON · ODSĒ	1

Rochester.

107. hĒNRICVSRĒ · X ·	ÆLISĀNDR · ON · RO	1
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Rhuddlan.

108. hĒNRICVSRĒ · X · ¹	hĒNRICVS · ON · RVLĀN ²	1
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St. Edmundsbury.

109. hĒNRICVSRĒ · X ·	FVLRA · ON · S · ÆDM	1
110. "	FVRA · ON · S · ÆDM	1

Winchester.

111. hĒNRICVSRĒ| · X ·	ÆDAM · ON · WINC	1
112. "	ÆDAM · ON · WIN ·	1
113. "	ÆNDRĀV · ON · WIN	3
114. "	BARTĒLMĒ · ON · W	4
115. "	IOhAN · ON · WINC	1
116. "	LVRTS · ON · WINC	2
117. "	LVRTS · ON · WIH ·	2
118. hĒNRICVSR|ĒX	MILES · ON · WINCĒ	1
119. "	RĀVF · ON · WINC	1

¹ 2-2 curls.² Cannot be VIII.

CLASS V c.

Canterbury.

<i>Obverse.</i>		<i>Reverse.</i>	
120.	HENRICVS REX	ARNVD · ON · DT	1
121.	HENRICVS REX	GOLDWING · ONDT	1
122.	HENRICVS REX	RV · ON · DT · NT	1
123.	"	IGAN · B · ON · DT	1
124.	"	IGAN · N · ON · DT	1
125.	"	ROBARD · ON · DT	1
126.	"	SIMON · ON · DT	1

Lincoln.

127.	HENRICVS REX	ANDRV · ON · NIO	1
128.	HENRICVS REX	RV · ON · NIOLE	1

London.

129.	HENRICVS REX	ABEL · ON · LVND	9
130.	"	ABEL · ON · LVND	1
131.	HENRICVS REX	ABEL · ON · LVND	5
132.	HENRICVS REX	ABEL · ON · LVND	1
133.	"	ADAM · ON · LVND	1
134.	"	ILGAR · ON · LVND	3
135.	"	ILGAR · ON · LVND	1
136.	"	ILGAR · ON · LVND	5
137.	"	ILGAR · ON · LVND	1
138.	"	ILGAR · ON · LVND	2
139.	"	RAVF · ON · LVND	9
140.	"	RAVF · ON · LVND	2
141.	"	RAVF · ON · LVND	1
142.	"	RAVF · ON · LVND	1
143.	"	RANGER · ON · LVND	1
144.	"	RIGARD · B · ON · LV	1
145.	"	WALTER · ON · LVI	7
146.	"	WALTER · ON · LVI	1
147.	"	WALTER · ON · LV	4
148.	HENRICVS REX	"	1
149.	HENRICVS REX	WALTER · ON · LVI	9
150.	"	WALTER · ON · LVI	1
151.	HENRICVS REX	WILLIAM · B · ON · LV	1
152.	"	WILLIAM · L · ON · LVI	1

CLASS VI.

Canterbury.

<i>Obverse.</i>	<i>Reverse.</i>	
153. HENRICVS REX	HENRI · ON · ANTE	3
154. "	HENRI · ON · ANTE	1
155. HENRICVS · REX	HENRI · ON · ANTC	1
156. "	HVN · ON · ANTE ·	1
157. HENRICVS REX	HVE · ON · ANTE	1
158. "	IOHAN · ON · ANTE	3
159. HENRICVS · REX	IOHAN · ON · ANT ¹	2
160. HENRICVS REX	IOHAN · ON · ANT	1
161. HENRICVS · REX	ROBERT · ON · ANT	1
162. HENRICVS REX	"	1
163. HENRICVS REX	ROGER · ON · ANTE	1
164. HENRICVS REX	ROGER · ON · AN	1
165. HENRICVS REX	ROGER · ON · ANTE	2
166. HENRICVS REX	"	1
167. HENRICVS REX	ROGER · ON · ANTE	1
168. HENRICVS REX	ROGER · ON · ANTE	1
169. HENRICVS REX	SAMUEL · ON · ANT	3
170. HENRICVS REX	SAMUEL · ON · AN	1
171. HENRICVS REX	SIMON · ON · ANTE	2

Carlisle.

172. HENRICVS REX	TOMAS · ON · AR	1
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Durham.

173. HENRICVS REX	PIERES · ON · VR	1
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London.

174. HENRICVS · REX	ABEL · ON · LVNDE	2
175. "	ABEL · ON · LVNDE	1
176. HENRICVS REX	ABEL · ON · LVNDE	4
177. "	ABEL · ON · LVNDE	4
178. "	ABEL · ON · LVNDE	5

¹ Of the same die.

London (continued).

<i>Obverse.</i>	<i>Reverse.</i>	
179. HENRICVS REX	ÆBEL · ON · LVNDÆ	2
180. HENRICVS REX	ÆBEL · ON · LVNDÆ	1
181. HENRICVS REX	ILGAR · ON · LVNDÆ	5
182. "	ILGAR · ON · LVNDÆ	2
183. HENRICVS REX	"	1
184. HENRICVS REX	ILGAR · ON · LVNDÆ	4
185. HENRICVS REX	"	2
186. HENRICVS REX	ILGAR · ON · LVNDÆ	1
187. "	ILGAR · ON · LVNDÆ	1
188. "	ILGAR · ON · LVNDÆ	1
189. HENRICVS REX	ILGGRONLVNDÆ ¹	1
190. HENRICVS REX	RÆVF · ON · LVNDÆ	3
191. "	RÆVF · ON · LVNDÆ	7
192. "	RÆVF · ON · LVNDÆ	1
193. HENRICVS REX	RÆVF · ON · LVNDÆ	1
194. HENRICVS REX	RÆVF · ON · LVNDÆ	1
195. HENRICVS REX	RÆVF · ON · LVNDÆ	1
196. HENRICVS REX	RÆVF · ON · LVNDÆ ²	2
197. "	WÆLTÆR · ON · LVNDÆ	1
198. HENRICVS REX	WÆLTÆR · ON · LVN	1
199. HENRICVS REX	"	3
200. "	WÆLTÆR · ON · LVN	3
201. "	WÆLTÆR · ON · LV	2
202. "	WÆLTÆR · ON · LVN	1
203. "	WÆLTÆR · ON · LVN	1
204. "	WÆLTÆR · ON · LV	1
205. HENRICVS REX	WÆLTÆR · ON · LVN ³	1

St. Edmundsbury.

206. HENRICVS REX	RÆVF ON · SÆNTÆR	1
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Winchester.

207. HENRICVS REX	LVKÆS · ON · WIN ²	2
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¹ Class VII?² From the same die.³ Imitation? with small letters.

CLASS VII.

Canterbury.

<i>Obverse.</i>	<i>Reverse.</i>	
208. hENRIQVSR|ÆX	hENRIONCANTÆ	4
209. "	hENRIONCANT.	1
210. "	hENRIONCANT	28
211. hENRIQVSR|ÆX	"	1
212. hENREVSRI|ÆX	hÆ · NRIONCANT ¹	1
213. hENRIQVSR|ÆX	hENRIONCANT.	1
214. hENRIQVSR|ÆX	hENRIONCANT	1
215. hENRIQVSR|ÆX	IOANONCANTÆR	11
216. "	IOANONCANTÆ.	9
217. "	IOANONCANTÆ	21
218. "	IOANONCANT.	2
219. "	IOANONCANT · T	1
220. "	IOANONCANT	6
221. "	IOANOCANT. ²	1
222. "	IOANOHIONCANT	1
223. "	IOANOHIONCANT	2
224. "	IOANOHIONCANT.	1
225. "	IOANOHIONCANT	30
226. "	IOANOHIONCANT	1
227. "	IOANOHIONCANT	1
228. "	IOANOHIONCANT	8
229. "	IOAN · F · R · ONCANT	1
230. "	IOAN · F · R · ONCANT	1
231. "	IOAN · F · R · ONCANT	1
232. "	IOAN · F · R · ONCANT	12
233. "	IOANFRONCANT	3
234. "	IOANFRONCANT	1
235. "	IOANFRONCANT	1
236. "	IOANFRONCANT	12
237. "	IVNONCANTÆRB	2
238. "	IVNONCANTÆRD	2
239. "	IVNONCANTÆR	7
240. "	IVNONCANTÆR	1
241. "	IVNONCANTÆR	2
242. "	IVNONCANTÆR	1

¹ Misstruck.² Double-struck.

Canterbury (continued).

<i>Obverse.</i>	<i>Reverse.</i>	
243. hēnriqvsr|ēx	ivnođantē ¹	1
244. "	ivnođant	1
245. "	nicholēonđant	1
246. "	nicholēonđan	39
247. "	nicholēonđ . an	1
248. "	nicholēonđan	4
249. hēnriqvsr|ēx	nicholēonđan	1
250. hēnriqvsr|ēx	nicholēonđan	6
251. "	nicholēonđ .	1
252. "	nicholēonđ .	1
253. "	nicholēonđ	27
254. "	nicholēonđ	1
255. "	nicholēonđ	2
256. "	nicholēonđ	4
257. hēnriqvsr|ēx	"	1
258. hēnriqvsr|ēx	inicholēonđ	1
259. "	oshvndonđant	2
260. "	oshvndonđan .	1
261. "	oshvndonđan	23
262. "	oshvndonđ	1
263. "	oshvdonđant	1
264. "	robertonđan	1
265. "	rogeronđantē	3
266. "	rogeronđant .	3
267. "	rogeronđant	17
268. "	rogeronđan	7
269. "	roger . of . r . onđ	5
270. "	rogerof . r . onđ	2
271. hēnriqvsr|ēx	"	1
272. hēnriqvsr|ēx	rogerofronđ	6
273. "	. roger . of . r . onđ	1
274. "	"	5
275. "	roger . of . r . onđ	1
276. "	. . . . . erof . r . onđ ²	1
277. "	rogerofronđ	3

¹ Misstruck.² Double-struck on an earlier coin with the legend :

. iđantē

Canterbury (continued).

<i>Obverse.</i>	<i>Reverse.</i>	
278. HENRICVS REX	ROGARO F. ONOAN	1
279. "	SALAMVNONOA	5
280. "	SALAMVNONOA	1
281. "	SALAMVNONOA	1
282. "	SALAMVNOND.	2
283. HENRICVS REX ¹	SALAMVM. ON. OA ²	1
284. HENRICVS REX	SAMVELONOA	1
285. HENRICVS REX	SAMVELONOA	5
286. "	SAMVELONOA	1
287. "	SAMVELONOA	1
288. HENRICVS REX	SIMONONOAHT	1
289. HENRICVS REX	SIMVNONOAHTOC	1
290. "	SIMVNONOAHTO	1
291. "	SIMVNONOAHT	1
292. "	SIMVNONOAHT	1
293. "	TOMASONOAHTO	2
294. "	TOMASONOAHTO	9
295. "	TOMASONOAHTO	1
296. "	TOMASONOAHT.	1
297. "	TOMASONOAHT. T	2
298. "	TOMASONOAHT	4
299. HENRICVS REX	"	1
300. HENRICVS REX	TOMASONOAHT	6
301. "	TOMASONOAHT	1
302. "	TOMASONOAHT	2
303. "	WATERONOA	1
304. "	WATERON. OAN	1
305. "	WILLAHONOAHT	1
306. "	WILLAHONOAHT	12
307. "	WILLAHONOAHT.	2
308. "	WILLAHONOAHT	18
309. "	WILLAHONOAHT.	1
310. "	WILLAHONOAHT.	1
311. HENRICVS REX	"	1
312. HENRICVS REX	WILLAH. TA. ONOA	8
313. "	WILLAHONOAHT	6
314. "	WILLAH. TAONOA	6

¹ 2-2 curls.² Imitation ? VIII ? bad silver.

Canterbury (continued).

	<i>Obverse.</i>	<i>Reverse.</i>	
315.	hENRIQVSR|EX	WILLHTTROCT	1
316.	"	WILHTT · ONCT	1
317.	"	WILHTRONCT	2

London.

318.	hENRIQVSR|EX	ABELONLVNDÆ	3
319.	hENRIQVSR|EX	"	1
320.	hENRIQVSR|EX	ADATHONLVNDÆ	6
321.	"	ADATHONLVNDÆ	32
322.	"	ADATHONLVNDÆ	2
323.	"	ADATHONLVNDÆ	5
324.	"	ADATHONLVN · D	2
325.	"	ADATHONLVND ·	1
326.	"	ADATHONLVND ¹	2
327.	hENRIQVSR|EX	ADATHONLVND	10
328.	hENRIQVSR|EX	ELISONLVN · DÆN	1
329.	"	ELISONLVNDÆ	2
330.	"	ELISONLVNDÆ	7
331.	"	GIFFRÆIONLVNDÆ	1
332.	"	GIFFRÆIONLVND	1
333.	hENRIQVSR|EX	"	1
334.	hENRIQVSR|EX	GIFFRÆIONLVND	1
335.	"	GIFFRÆIONLVN ·	1
336.	"	GIFFRÆIONLVN	18
337.	"	GIFFRÆIONLVND	2
338.	"	ILGÆRONLVNDÆ	1
339.	"	ILGÆRONLVNDÆ	5
340.	"	ILGÆRONLVNDÆ	1
341.	"	ILGÆRONLVND	1
342.	"	ILGÆRONLVN · D ·	1
343.	"	ILGÆR · ONLVN · D	1
344.	"	ILGÆRONLVN · D	3
345.	"	ILGÆRONLVND	10
346.	"	ILGÆRONLVND ¹	2
347.	"	ILGÆRONLVN · D · ¹	2
348.	"	ILGÆONL · VNDÆ ²	1
349.	"	LÆDVLFONLVND	9

¹ From the same die.² Sceptre ✝

London (continued).

<i>Obverse.</i>	<i>Reverse.</i>	
350. HENRIQVSR|EX	LADVLFOHLVND	6
351. "	LADVLFOHLVN .	3
352. "	LADVLFOHLVN	16
353. HENRIQVSR|EX	" ¹	1
354. HENRIQVSR|EX	LADVLFOHLV	1
355. "	LADLVFOHLVN .	1
356. "	LADVFOHLVND	1
357. "	LADVFFOHLV	1
358. "	NICHOLEOHLVND	6
359. "	NICHOLEOHLVND	3
360. HENRIQVSR|EX	NICHOLEOHLVN .	2
361. HENRIQVSR|EX	NICHOLEOHLVN	48
362. HENRIQVSR|EX	"	1
363. HENRIQVSR|EX	NICHOLEOHLVN	1
364. HENRIQVSR|EX	"	1
365. "	NICHOLEOHLV	4
366. "	RAVF . ONLVNDΘ	1
367. "	RAVFONLVNDΘ	4
368. "	RAVCONLVNDΘ	1
369. "	RAVFONLVNDΘ	1
370. "	RAVLFOHLVNDΘ	5
371. HENRIQVSR|EX	RAVLFOHLVNDΘ	1
372. HENRIQVSR|EX	RAVLFOHLVND	12
373. "	RAVLFOHLVND	1
374. "	RAVLFOHLVND	1
375. "	RAVLFOHLVD	1
376. "	RICKARDONLVND	1
377. "	RICKARDONLVND	6
378. "	RICKARDONLVN .	6
379. "	RICKARDONLVN	17
380. "	RICKARDONLVN	1
381. "	TERRIONLVNDΘ	2
382. "	TERRIONLVN . D	2
383. "	TERRIONLVN . D	1
384. "	TERRIONLVND .	1
385. "	TERRIONLVND	7
386. "	TERRIONLVN .	2
387. "	TERRIONLVND	1

¹ Sceptre %

St. Edmundsbury.

<i>Obverse.</i>	<i>Reverse.</i>	
388. hENRIQVSR|ÆX	IOATHONSANTH	3
389. "	IOATHONSANTH	2
390. "	IOATH HSANTH	1
391. "	NORMATHONSANT	3
392. "	NORMATHONSAN	4
393. "	NORMATHON · ST	1
394. "	SIHVNDONSANTH	5
395. "	SIHVNDONSANT	13
396. "	SIHVNDONSAN	1
397. hENRIQVSR|ÆX	WILLALMONSANT	1
398. hENRIQVSR|ÆX	WILLALMONSAN	1

CLASS VIII.

Canterbury.

399. hENRIQVS · R|ÆX	† IOATH · ONCANTH	1
400. "	† IOATH · ONCANT	2
401. hENRIQVSR|ÆX	† IOATH · ON · CTN ¹	1
402. hENRIQVSR|ÆX	† IOATH · ONCATH	1
403. . . . . |ÆX	† IOH T ²	1
404. hENRIQVS · R|ÆX	† NICHOLE · ONCANT	4
405. "	† NICHOLE · ONCATH ³	1
406. "	† NICHOLE · ON · CTN	1
407. hENRIQVSR|ÆX	† NICHOLEONCATH ⁴	1
408. hENRIQVSR| . .	† NICHOLEONCATH	1
409. hENRIQVS · R|ÆX	† NICHOLE · O · M · CT	1
410. hENRIQVS · R|ÆX	† NICHOLE · ONCT	1
411. "	† NICHOLEONCT	1
412. hENRIQVSR|ÆX	† WILLAM · ONCANTH	1
413. hENRIQVS · R| . .	† WILLAMONCT	1
414. hENRIQVSR|ÆX	† WILLAMONCT	1

¹ Class VIII?² Misstruck.³ Uncertain if there are points on the obverse.⁴ Probably with points.

London.

<i>Obverse.</i>	<i>Reverse.</i>	
415. HENRICVS: REX	✠NICHOLE: ONLVN	1
416. HENRICVS: R|EX	✠NICHOLE: ON · LVN	1
417. "	✠NICHOLE: ONLVND	1
418. "	✠NICHOLE: ONLVN	5
419. "	✠NICHOLEONLVN	1
420. HENRICVS · R|EX	✠NICHOLE: ONLVN	2
421. "	✠NICHOLE: ONLVN	1
422. HENRICVSR|EX	✠NICHOLE: ONLVN	2
423. "	✠NICHOLE: ONLV ¹	2
424. HENRICVS: R|EX	✠NICHOLE: ONLVN	1
425. HENRICVS · R|EX	"	1
426. "	✠NICHOLE · ONLVN	1
427. HENRICVSR|EX	✠NICHOLE: ONLVN	2
428. "	✠NICHOLE · ONLVN	1
429. "	✠NICHOLEONLVN	4
430. "	✠NICHOLE: ONLV	1
431. "	✠NICHOLEONLVN	1

St. Edmundsbury.

432. HENRICVSR EX	✠IOHAN: ONSAN	1
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Uncertain mint.

433. HENRICVSR EX	(without reverse)	1
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IRELAND.

John Lackland (1199), 1210-16.

Dublin.

434. IOHAN · NNAS · R EX	ROB RDOON DIV	1
435. IOHAN|NNASR|EX	"	2
436. IOHAN|NNAS|R|EX	"	14

¹ From the same die.

Limerick.

<i>Obverse.</i>	<i>Reverse.</i>	
437. IOHANNES|REX	WILLIAM|LIME	1
438. IOHANNES REX	WILLIAM LIME	2

Waterford.

439. IOHANNES REX	WILLIAM WAT	1
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SCOTLAND.

William I, the Lion (1165), 1195-1214.

440. LEREWILLTO:	HERWALTER:	1
441. AL. . . GWITH	HERWIL: RTO	1
442. TLWIR: G:	HERWILTGO	1
443. HERWILRO	HERW: ERD	1
444. LEREWILTO	WALTER. HERH	1
445. LEREWILTO:	HER. WALTER:	1
446. LEREWI . . .	ROTAW . . .	1
447. :I . . . IR: GLT	HERWTRI:	1
448. WILCOV	W. AV. TERE	1
449. :OALWIRAL	: ROTAWVA	1

Roxburgh.

450. WILLELMVS. REX PARISTAM. OHRO:	1
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Alexander II, 1214-49.

Roxburgh.

451. ALEXSANDER REX PIERSONROD	1	
452. ALEXSANDERR	PIRES: OHRO:	1

CONTINENTAL IMITATIONS.

453. HENRICVS|REX	ROGERONELVI	
454. . . NRICVS|E.	SANCTACOLONIA ¹	1

¹ With a rose in the crown.

GERMAN EMPIRE.

Frederick II, emperor, 1218-50.

Dortmund.

<i>Obverse.</i>	<i>Reverse.</i>	
455. FRÉD[.] Emperor seated.	TR[.]MAN[.]CO Short-cross penny type. ¹	1

COUNTY OF MARCK.

Adolf I, 1197-1249.

Hamm.

456. ADOLFVSQ (head)	MON[.]TAINhA (voided cross) ²	4
457. ADOLFVS.[.]Q	MON[.]TAINhA	1

Iserlohn.

458. MON[.]T[.]AISER*	MON[.]T[.]AISER ²	1
459. MON[.]T[.]AISER[.]G*	MON[.]T[.]AISER	2
460. MON[.]T[.]AISER[.]G*	"	1

BISHOPRIC OF OSNABRÜCK.

Conrad I, 1227-38.

461. S[.]ANT'P[.]TR'	CONRADVS[.]PO ⁴	2
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HAMBURG.

462. Bracteate. Wall, creneléd, surmounted by a tower.
In the wall an arch, wherein a star. 1

LÜBECK.

463.	Bracteate. Crowned head, facing.	7
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¹ Cf. Chantard, xxi. 8.

² *Ibid.*, xxx. 9.

³ Chantard, xxx. 8.

⁴ *Ibid.*, xxiv. 12.

COUNTY OF PROVENCE.

Charles I d'Anjou, 1246-85.

Marseille.

<i>Obverse.</i>	<i>Reverse.</i>	
464. COMES: PVINCIE Head to left.	CIVITAS MASSIL ¹ Castle.	1

NOTE.—Owing to difficulties of communication, it has been impossible to submit proofs of this article to the author. The Editors desire to express their thanks to Mr. L. A. Lawrence for his kind assistance in the revision.

¹ P. d'Avant, 3956, pl. lxxviii. 17.

XV.

NOTE ON THE RIBE FIND.

MR. GALSTER was good enough to send me the first manuscript of his account of the Ribe hoard of short-cross coins. This came to hand most opportunely, as I was just then correcting the final proofs of the classification of this series now published in the *British Numismatic Journal*, new series, vol. i.

I was unable to send him copies of my proposed alterations, but sent him the plates and a very brief outline of my ideas. He thereupon recatalogued the Ribe find, and the result of his labours has proved most interesting.

As is usual with finds of this period, all classes of short-cross coins were found together, the only absentee being Class Ia, the very earliest issue and one of considerable rarity now. There were no coins of so early date as 1180 among the non-English pieces found with the hoard, the earliest of which, issued by Adolf I, Count of Marck, cannot be dated before 1197. The few Scottish coins of William the Lion date from not before 1195. The latest continental coin was issued by Charles I d'Anjou, Count of Provence, 1246-85. The short-cross coinage came to an end in 1247, with the issue of long-cross coins of which there was not a single specimen in the hoard. These data as shown by Mr. Galster give us a fairly accurate date for the burial of the hoard. The presence

of Classes I *b* and I *c* show that the contents of the hoard go back to somewhere very near 1180. A careful examination of the list proves that the very large majority of the coins were quite late ones. The numbers are Class I *b*, 9 coins; Class I *c*, 3 coins; Classes II and III together, 14 coins; Class IV, 9 coins; Class V *a*, 9 coins; Class V *b*, 104 coins; Class V *c*, 78 coins; Class VI, 101 coins; Class VII, 904 coins; Class VIII, 48 coins.

Herein lies the great interest in the hoard. Hitherto no find of these pieces has yielded anything like the number of Class VIII. We can easily discern this, as although Class VIII as a separate class has only now been distinguished, the few names found on the coins have been noted in the earlier finds as occurring on one or two specimens only. Mr. Galster describes 37 as by Nichole alone at Canterbury and London. The list also contains the names of William of Canterbury and John of Bury St. Edmunds, who with Nichole were alone responsible for the earliest type of long-cross coins at the three mints.

In comparing Mr. Galster's catalogue of the Ribe hoard with the skeleton table given in the paper on chronology, some few coins will be found which were not included in the latter; thus Alexander of London is now credited with a coin of Class V *b*. There may be others I have not yet noted. Some few coins, however, I cannot but think Mr. Galster, owing to the insufficient description sent him, has classed otherwise than I should have done. Thus No. 108 Rhuddlan he notes could not have been Class VIII, but he was not aware that the Rhuddlan mint did not open before 1240, whereas the date of Class V *b* is between 1205 and 1210.

No. 21 with its 2 would better appear I think under Class V *a*, some of the earliest examples of which are a throwback or copy of Class I. No. 28, Willen on Cant, looks very much out of place in Class IV, when the tables give this moneyer, in plenty too, to Classes VII and VIII. Coin No. 172, Tomas on Car, credits Carlisle with a coin in Class VI, although Carlisle was abolished before type VI came into being as the result of the writ to William Marshall, jun. The coins struck by John at Bury St. Edmunds under Class VII in Mr. Galster's list are new to me in this class. There is, however, room for them at the end of the class, and he certainly struck in the next class, VIII. A few coins show muling between Classes V *a* and V *b*, and also between Classes VI and VII; these latter are distinguished by the presence of the ornamental letters of Class VI.

The mints represented do not include Lichfield and Worcester. These two mints had a very short life. Worcester only issued Class I *b* and Lichfield Class II *a*; they are, moreover, both rare mints, the coin of Lichfield being still unique.

There are no new moneyers' names mentioned in Mr. Galster's list, but there are numerous varieties of spellings shown, especially under Class VII, and further varieties of punctuation and ligation of letters. I feel sure that the trouble taken in writing down all these minutiae of the find will prove most useful in the future, and I am glad to think that the *Numismatic Chronicle* will be the richer as the result of Mr. Galster's patient labours.

L. A. LAWRENCE.

MISCELLANEA.

MORE GERMAN WAR MEDALS.¹

"IN OUR IRON TIME, 1916."

LAST April attention was drawn in these columns to the long series of war medals, some five hundred in number, which the first eighteen months of the world-war had produced. As is clear from a supplementary sale-catalogue, recently published in Amsterdam, the industry still flourishes. But there are certain significant differences which deserve a passing notice. Thus it can hardly be a mere coincidence that the little silver medalets for watch-chain wear, formerly so popular in Germany, have disappeared completely. It looks as if there were no longer any effective demand for "tokens" to celebrate such "victories" as the Scarborough bombardment. A pathetic feature is the great increase in the number of specimens of paper money of small denominations, intended to supply a currency for prisoners' camps or for those portions of the Allied countries which are in enemy occupation. It is strange, for instance, to encounter a group of notes, ranging in nominal value from two francs to ten centimes, that belonged to an issue of two million francs, guaranteed under date April 23, 1915, by a resolution of seventy communes in the region of the Somme and the Ancre. When one sees in the list such familiar names as Miraumont, Irles, Courcellette, Thilley, and Warlencourt, one shudders to think of the appalling rate at which the securities, heritable and other, must have depreciated through the action of high explosives.

All the belligerents, except Japan and Portugal, have contributed their quota to the sum total of the war medals proper. Germany, however, has once again been far and away the most active. In a fair proportion of cases the underlying motive has obviously been a desire to honour individuals by associating them with some particular

¹ Reprinted from the *Scotsman* of March 19, 1917, with the Editor's kind permission.

achievement or with some popular declaration of policy. The collection, in fact, constitutes a sort of national portrait-gallery of all the German admirals, German generals, and German statesmen whom the events of the last three years have brought into prominence. A bust of von Tirpitz, for example, is backed by a plump figure of Germania "doing battle for the freedom of the seas", while both von Scheer and Hipper receive credit for their great "victory off the Skagerrak", which is said to have been won "not by chance but by sheer capacity". The military laurels have been gathered mainly on the Eastern front, and first and foremost by von Mackensen. The big events of 1916 in the West are but rarely alluded to, although a huge iron medal with allegorical figures depicts "the horrors of the Somme", and a companion piece shows the scourge of war descending upon Verdun. Titbits from the Imperial Chancellor's Reichstag speech of June 5 are immortalized on unwieldy lumps of metal bearing his image and superscription, and Royalties more or less considerable are, of course, sprinkled freely through the pages of the catalogue—so freely, indeed, that the Kaiser and the Crown Prince tend rather to be elbowed into the background.

A good deal of space is occupied by heroes of less exalted rank, like the aviators Boeleke and Immelmann. On the latter of these one enthusiastic medallist has conferred the title of "The Eagle of Lille". And it is interesting to observe that few even of the major happenings of the war have caught the German imagination in the way that the exploits of the *Mowee* and the voyage of the *Deutschland* appear to have done. The capture of the *Appam* could hardly have been more loudly celebrated if it had affected the naval situation as profoundly as did Trafalgar. The tribute of medallie portraiture is paid not only to the raider's captain, Count zu Dohna-Schlodien, but also to the officer who navigated the prize to the United States, Lieutenant Berg. So, too, with Captain König, of the *Deutschland*, in immediate juxtaposition to whom we are astonished to find a much older Atlantic voyager—to wit, no less a person than Francis Drake himself. The first glance at his bust, dressed in correct Elizabethan costume, and identified beyond possibility of mistake by his name, sets one wondering whether Houston Stewart Chamberlain has succeeded in proving that the Spanish Armada was defeated by Germans. But the real explanation is a veritable anticlimax; it is furnished by an inscription on the reverse,

"Francis Drake was the name of the gallant man who three centuries ago sailed from England to America in command of a ship, and who when he returned from his distant travels brought with him the good things that we call potatoes. This useful vegetable we owe to the very same State that is to-day—1916—endeavouring to starve us out. Such is the irony of world-history and of world-politics."

The Drake medal is not the only one on which the food difficulty is frankly alluded to. Another piece pillories the butchers who indulge in "profiteering", and threatens them with handcuffs and the knout. A third is directed against the bakers, two of whom are represented diligently sawing a log of wood in order to secure material for bread. That bronze is growing scarce is abundantly clear from the fact that it is not used for almost any of the recent medals, iron being the usual substitute. And gold, as might be expected, is altogether unknown. In this connexion a small medal of iron is of special interest; it is issued by the Reichsbank, and presented to persons who hand gold ornaments over the counter. On the obverse is a kneeling woman, holding out a piece of jewellery, accompanied by the legend, "In our iron time, 1916". On the reverse is a branch of oak, and the couplet:—

Gold I gave in hour of need,
Iron received as honour's meed.

Presumably the idea is that this should be transmitted as an heirloom. The same consideration for the future is plainly responsible for a medal having on the obverse a "Pickelhaube", or spiked helmet, resting on a shield, and on the reverse a mailed fist clasping a hand that is indubitably feminine, the two between them supporting a sword. The legend is, "Wedded in war-time". The mention of "war-weddings" inevitably suggests a search for the "war-baby". And, sure enough, here he is on another medal, nestling inside an inverted "Pickelhaube", which reposes on a little pile of bombs. The inscription reads, "Born during the world-war". The well-to-do can purchase either of the last two medals in silver.

The productions just described give us a quaint glimpse into the mentality of the great nation with whom our own is now locked in a life-and-death struggle. The definitely satiric medals are a more lurid illuminant. It is sometimes said that a boxer never feels thoroughly confident until he sees that his opponent is losing his temper. If the analogy

holds good, a perusal of the catalogue should be comforting. In any case it provides a wholesome discipline in the way of seeing ourselves as others see us. The rest of the Allies escape almost scot-free, except for a few fierce thrusts at Italy or at individual Italians, like Gabriele d'Annunzio, who is represented as Judas Iscariot. It is for Britain that the vials of German wrath are reserved. And what vials they are! Humour, or at all events humour of the conscious variety, has taken to itself wings and has disappeared in the train of good taste, artistic and other. In their place we have a rich infusion of the spirit that breathes through the "Hymn of Hate". We may select as typical a medal on which is depicted a winged hydra with three heads. Around is the text, "There was given to him a mouth speaking great things and blasphemies", and beneath are the words, "Who is like unto the beast?" On the other side is "Sir Edward Grey" in large letters, with a pen beneath to symbolize his dispatches.

The catalogue contains nothing quite so shocking as the *Lusitania* medal. On the other hand, one cannot help observing that the author of that infamy, Karl Goetz, now appears to enjoy extraordinary popularity as a designer. A specimen of his handiwork, dealing with the loss of the Zeppelin L 19 in the North Sea, forms a highly instructive counterpart to the performance through which he first became notorious. On the obverse is the airship labouring heavily amid the waves; the crew have clustered on the upper portion of the envelope, and are looking over the angry waters to a trawler, the *King Stephen*, which is disappearing in the distance. The reverse is almost wholly occupied by the inscription, "Curse the British at sea! Curse your evil conscience!" which is doubtless meant to express the feelings of the Zeppelin's crew (who are all represented as shaking their fists vigorously), and by the descriptive sentence, "Shipwrecked men, imploring help, were left to drown, 2nd February 1916". Yet another of Goetz's creations shows on the obverse a half-length portrait of Roger Casement, stripped to the waist and bound, with a lanky Highlander busily engaged in tying a rope round his neck; as caricatured in Germany, the British Army usually wears a kilt, a delicate compliment which Scotsmen will not be slow to appreciate. On the reverse a spider is hard at work weaving its web round a stout volume, which is labelled "English Law, 1351". The book itself is supported by a pleasing assortment of mediæval instruments

of torture, from the midst of which there grins a skull with serpents issuing from its eyes. Across the field is the date of Casement's execution, "3rd August 1916", while round the margin is the doggerel verse:—

Edward Third's dead hand
Fastens the noose round Ireland.

Another echo of the unhappy Irish rising presents us with a picture of Death, wearing the undress cap of a hussar and smoking a clay pipe, seated jauntily on the edge of a tomb inscribed "Home Rule. R.I.P." He is contemplating with apparent satisfaction a bunch of shamrock which he holds in his hand, and which is described in the rubric as "A posy of May flowers from the Emerald Isle". This medal is one of a group of six executed by a certain W. Eberbach. They are identical in size, and are clearly meant to be regarded as forming a sort of "danse macabre". In all of them the same repulsive figure is conspicuously "featured", as the cinema advertisements would have it. Thus on one he stands astride above the sinking *Lusitania*, gloating over her as she sinks beneath the waves, the accompanying legend being "Spite and heedless frivolity on board of the *Lusitania*". The reverse dedicates the medal "To Woodrow Wilson, the man who despised our warning. 1916." It is far from agreeable to linger in such company. But the effrontery displayed in a third member of the series is so colossal that one cannot pass it by in silence. As in the case of all the others, Death dominates the field. This time he is seated with his back to the spectator, closely watching a passing liner, whose fate is plainly foretold by the mine which he holds in the one hand and the torpedo which he grasps in the other. Above are the words, "England's greeting to the neutral ship *Tubantia*", the *Tubantia* being, of course, the fine Dutch steamer which was one of the first victims of Germany's campaign against neutrals. On the reverse is the unexceptionable sentiment, "The best of people can't live in peace if their wicked neighbour doesn't want them to". Britain or Germany—which of these was neighbour to him that fell among thieves?

NOTICES OF RECENT PUBLICATIONS.

The Dated Alexander Coinage of Sidon and Ake. (Yale Oriental Series. Researches, vol. ii.) By E. T. NEWELL. Pp. 72, with 10 collotype plates. New Haven, London, and Oxford, 1916. \$2.50 net.

MR. NEWELL's researches in the thorny problems of the Alexandrine coinage are already familiar to numismatists, and readers of the *Numismatic Chronicle* will find that the present contribution shows all the features of patient observation, acute analysis, and far-reaching constructive inference, which characterized, for instance, his treatment of the Alexandrines of Cyprus. He now deals with the two highly important dated series of Sidon and Ake. By his usual method, comparing large numbers of casts from all available collections, with a view to discovering identity of dies, examining hoards, and generally making use of all the latest invented instruments of numismatic research, he is able not merely to clear up many doubtful points, and disprove many erroneous statements, but also to construct a new chronological arrangement. The book must be read to obtain an idea of its high value, not only as giving definite results, but as a model of method. Here I propose only to note a few minor details out of many which have struck me in reading it. The method of numeration of the varieties is in some respects open to criticism. It must be difficult to find anything completely satisfactory; but some system less liable to confusion between such marks as II (= Roman two or double i) should have been devised; italic capitals might have been used in the latter case. Again, when as on Plate V, Nos. 3, 5, 6, and 7, you have four coins from the same obverse die XXXIII, and four different reverse dies of different years, it is confusing to call each and all of those reverse dies by the same letter *a*. The first reform, perhaps, would be to have a continuous numeration for the reverse dies as for the obverses; the second, to number the coins in the plates with the numbers they bear in the

text. Before attempting to use the book it is well to mark on the plates the divisions of the series to which the coins belong, and letter them throughout in accordance with the text. This, however, is the only criticism of arrangement which suggests itself in connexion with a book which is in general, as I have said, a model of good method.

Mr. Newell suggests that the serpent and the griffin on the helmet of Athena have a symbolical significance, and that the griffin may have a special reference to the East. But it is to be remembered that both creatures were associated with Athena long before Alexander's time; the Parthenos of Pheidias had her serpent beside her, and foreparts of griffins formed part of the ornament of her helmet.—Mr. Newell removes from Sidon a series of staters with the symbol star, which previous writers, including myself, had placed there, and says they belong to Sinope. He does not give his reasons, which are doubtless adequate; but this it is to be hoped he will do later, just as he promises to supply Tyre, hitherto supposed to be almost devoid of Alexandrine issues, with a whole series of coins.—He is convincingly right in his correction of my reading of one of the Phoenician letters on the small series dated with Phoenician dates 7-10; what I have read γ (11) is really ν (10). This is now followed regularly by the Greek letter κ (also=10). On the other hand, he is I think over-cautious in refusing to accept my conjectural emendation of Müller's reading Λ into Λ , which would give us a coinage for year 11. It is difficult to place the coin anywhere else. This series with Greek letter-dates now goes on to Ω (24 = 310-9 B.C.). The dates on a series covering four years, with Λ - Δ accompanied by M or a monogram of which M is the chief part, used to be read as 41-4. I showed that M could not here be 40. Mr. Newell not only confirms this, but shows that these dates follow directly on the series dated with the letters down to Ω , the coin with Ω and the coin with the monogram of M and the date Λ sharing the same obverse die. The monogram, or the single M , "can therefore only be taken as a differential to designate a new issue". I would suggest that it is the abbreviation of some combination of $\mu\epsilon\rho\acute{\alpha}$, signifying "following after", i.e. "second series" of alphabetical dates—possibly some word like $\mu\acute{\epsilon}\theta\epsilon\tau\omicron\nu$.

At Ake Mr. Newell makes, by a singularly acute piece of analysis, the surprising discovery that the dated Alexandrines refer not to the era of Alexander in Phoenicia, but to an era beginning in 347 B.C. He thinks that this must have

marked the beginning of some new reign. Possibly; but we may I think connect it, new reign or not, with the reorganization of Phoenicia after the suppression of the great revolt which raged from 351 to 348 B.C. These dated coins of Ake go on until year 39 (307 B.C.). Then, as Mr. Newell shows, follows a short series dated 8-11, representing an era beginning in summer 315 B.C., when Antigones attacked and occupied Phoenicia.

These are a few of the many points which have suggested themselves as calling for remark in one of the most interesting pieces of numismatic work that it has been my fortune to come across for some time. G. F. H.

The Casting-Counter and the Counting-Board: A Chapter in the History of Numismatics and Early Arithmetic. By Francis P. Barnard, M.A., F.S.A., late Professor of Mediaeval Archaeology in the University of Liverpool. Oxford: Clarendon Press. 1916. Pp. 358, with sixty-three plates. £3 3s.

The author modestly declares that his book "does not profess to be more than the essay of a pioneer". But it is safe to say that it will be long before it is superseded. Professor Barnard is to be congratulated on having laid well and truly the foundations of a study that, in this country at least, has been systematically neglected by numismatists. The counting-board or counter-cloth, the mediaeval equivalent of the modern calculating-machine, enjoyed immense popularity in Europe for six centuries from 1200 onwards. In France, where its use lingered longest, it received its death-blow from the introduction of a decimal system of coinage at the time of the French Revolution. In England and in Germany it had died out fully a hundred years earlier. Specimens of actual boards or cloths are now of the highest rarity, and the few that exist are in continental museums. Of the jettons or counters, on the other hand, many thousands survive. Professor Barnard has examined between 40,000 and 50,000, all found in England alone; and, with the instinct of a trained observer, he has been able to gather from this mass of material a harvest whose richness will astonish those of us who have been wont to toss "counters" aside with a feeling of helpless despair, not always very far removed from contempt.

Of the three parts into which the book is divided, the first deals with the jettons themselves. An elaborate introduction discusses them from all possible points of view—etymological, historical, and technical. It is surprising how accurately they mirror the varied interests that one is familiar with in the coinage of which they were so often a by-product, and for which they were occasionally used as a substitute. It is true that the reflection is only in little. But the enthusiast will find ample compensation in its multiplicity: a feature due to the extent to which special sets of counters were designed and struck for private corporations and for individuals. During what may be called the "medallic" period those issued for general use were employed, just as medals were, for political and propagandist purposes; they represented the half-penny press of to-day at a time when medals occupied the place of our more expensive and respectable weeklies. Even as works of art not a few of them demand attention, for they attracted engravers of the calibre of Nicolas Briot and the Roëltiers. Following the Introduction is a most minute and careful description of a long series of typical specimens—Anglo-Gallic, Italian, French, Low Country, German, and Portuguese—selected from the 7,000 examples in Professor Barnard's own collection.

The second, and shortest, section of the book describes the known examples of boards and cloths, while the third is devoted to an account, drawn from contemporary authorities and illustrated by numerous diagrams, of the various methods of reckoning which were utilized in this "manual arithmetic". Here the mathematician will find himself at home, and the schoolmaster may be able to pick up hints. The text ends with two very full indexes, one of "Legends and Inscriptions", the other "General". The Plates form an invaluable supplement. The first thirty-six reproduce the more important of the jettons described. The others are more miscellaneous in character, some of them showing boards and cloths, others the representations of those that appear either on jettons or in old manuscripts, engravings, and the like.

Probably no one save Professor Barnard himself has sufficient knowledge of the subject to justify any attempt at detailed criticism. But one observation of a general kind may be permissible. The book is a quarry in which many generations of future workers are likely to dig with profit. But it is almost too full and exhaustive for general

use. He would render a further great service to the subject if he were to throw the more important of his conclusions into the form of a handy manual, omitting the imposing array of evidence, documentary and other, which it has proved necessary for him to marshal here.

The Evolution of Coinage. By George Macdonald. Cambridge : at the University Press. 136 pp., with 8 plates.

In this volume of the Cambridge Manuals of Science and Literature Dr. Macdonald has surveyed the whole history of coinage from the earliest times to the present day. We do not know which to admire most—the author's knowledge, or the skill with which he selects from his store and marshals his facts and theories into a continuous whole. The points one looks for all seem to be in, until one wonders how so much material can have been gathered into a slender volume of 136 small pages.

In a lucid introductory chapter it is shown how metals came to be used as a medium of exchange, how the precious metals silver and gold established their pre-eminence, and how the relatively small portions of these metals which would be used brought nearer the necessity of stamping these small pieces with some sign of their intrinsic value and thus of passing from the use of metallic currency to the use of "coins". Dr. Macdonald thinks it would be rash to try and decide whether the Greeks or the Lydians were the first to do this, but we do not think on the evidence that the Greek case is very strong. So much for the West. But it appears that while the Lydian invention was made in the eighth century B.C. coinage in China goes back to at least 1091 B.C. Chapter II deals with the principles regulating the relations between the coinage and the state, while Chapter III, on the material of coinage, deals with the relative value at different periods of the precious metals and bronze. The methods of production from early times, the introduction of machinery, and various other technical points, form the subject-matter of another chapter, which is followed by a chapter on types, an aspect of the subject which has been treated before by Dr. Macdonald. We have never had much faith in the theory that Greek coin types had a religious significance, and we believe that the author is on very firm ground when he says that "the connexion between coins and religion was in the first instance purely for-

tuitous". These types were used "not because of any sacrosanct character attaching to money as such, but because the emblems had already become heraldic devices". This chapter also deals with portraiture on coins, the sacred figures passed on from Byzantium to the mediæval mints, commemorative issues, &c. Closely allied with the question of types is that of inscriptions, which have a chapter to themselves, starting from "I am the badge of Phanes", to the bezant struck at Acre with the inscription in Arabic: "There is but one God, and He is the Father, the Son, and the Holy Ghost. Struck at Acre in the year 1251 from the incarnation of our Lord and from our regeneration. He it is who saveth us and loveth us. God forbid that we should boast save in the cross of our Lord Jesus Christ, in Whom is our salvation and our life." The concluding chapter deals with dates and marks of value. The book is illustrated with seven plates and a frontispiece, and the University Press is to be congratulated alike on its choice of writer and the excellence of production. There is a misprint in the heading of p. 21.

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PERSIAN SIGLOI.





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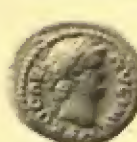
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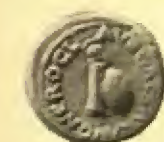
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12

COINAGE OF NERO.



LATE ROMAN DENARII AND QUINARII.





SOME GREEK COINS FROM FRACTURED DIES.





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16



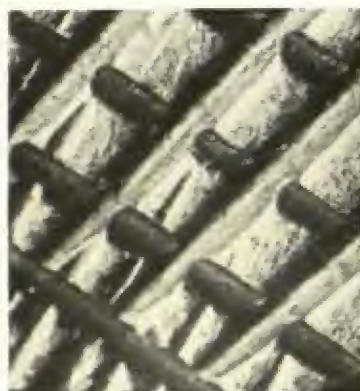
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18

SEVENTEENTH CENTURY COUNTERS.





1. Seventeenth-century Spoon. Engraved.



2. Charles I Counter. Engraved (?).



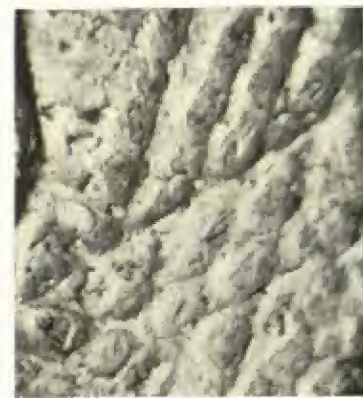
3. Briot's Half-groat. Struck.



4. Frederick of Bohemia Counter. Struck (?).



5. Medal, circa 1630. Cast.



6. Edward V Counter. Cast (?).





COINS OF MAGNA GRAECIA.



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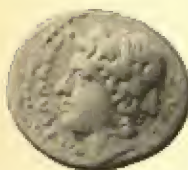
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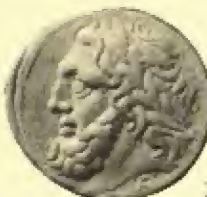
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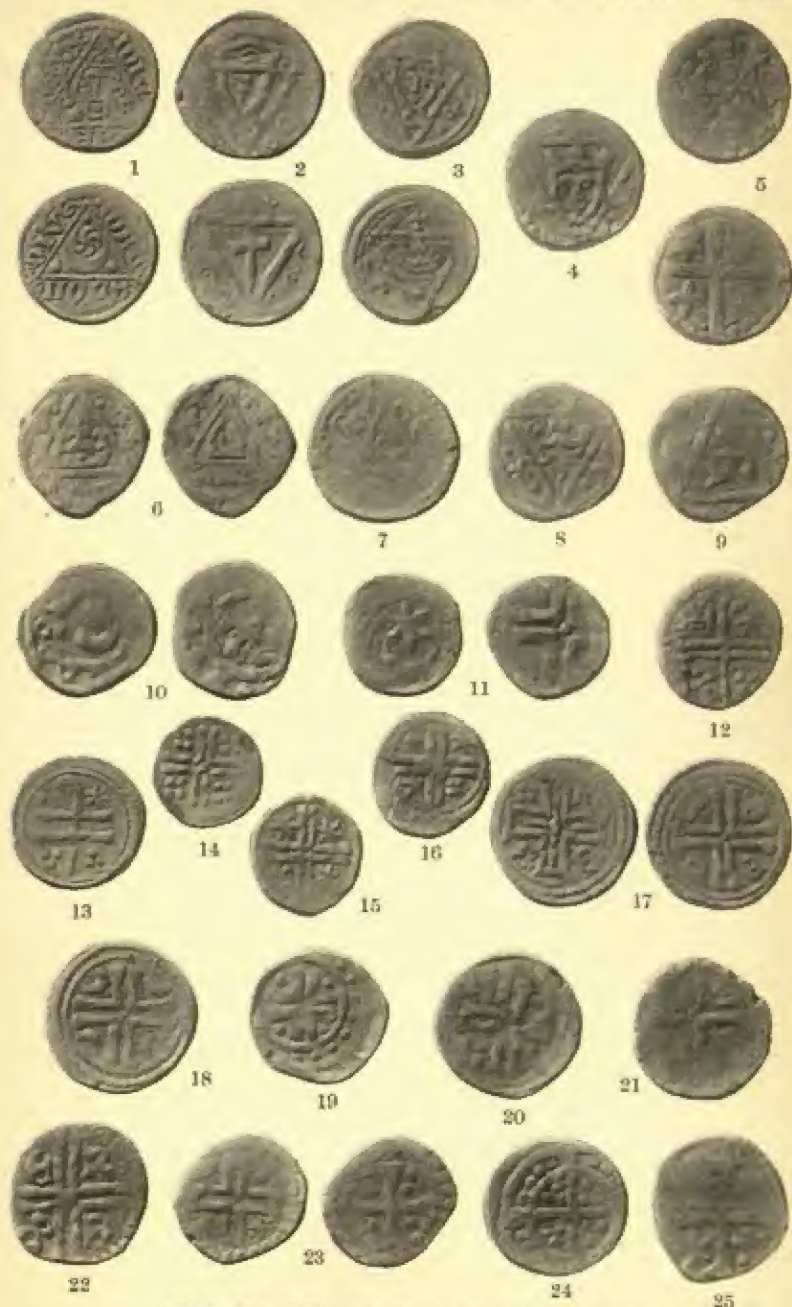
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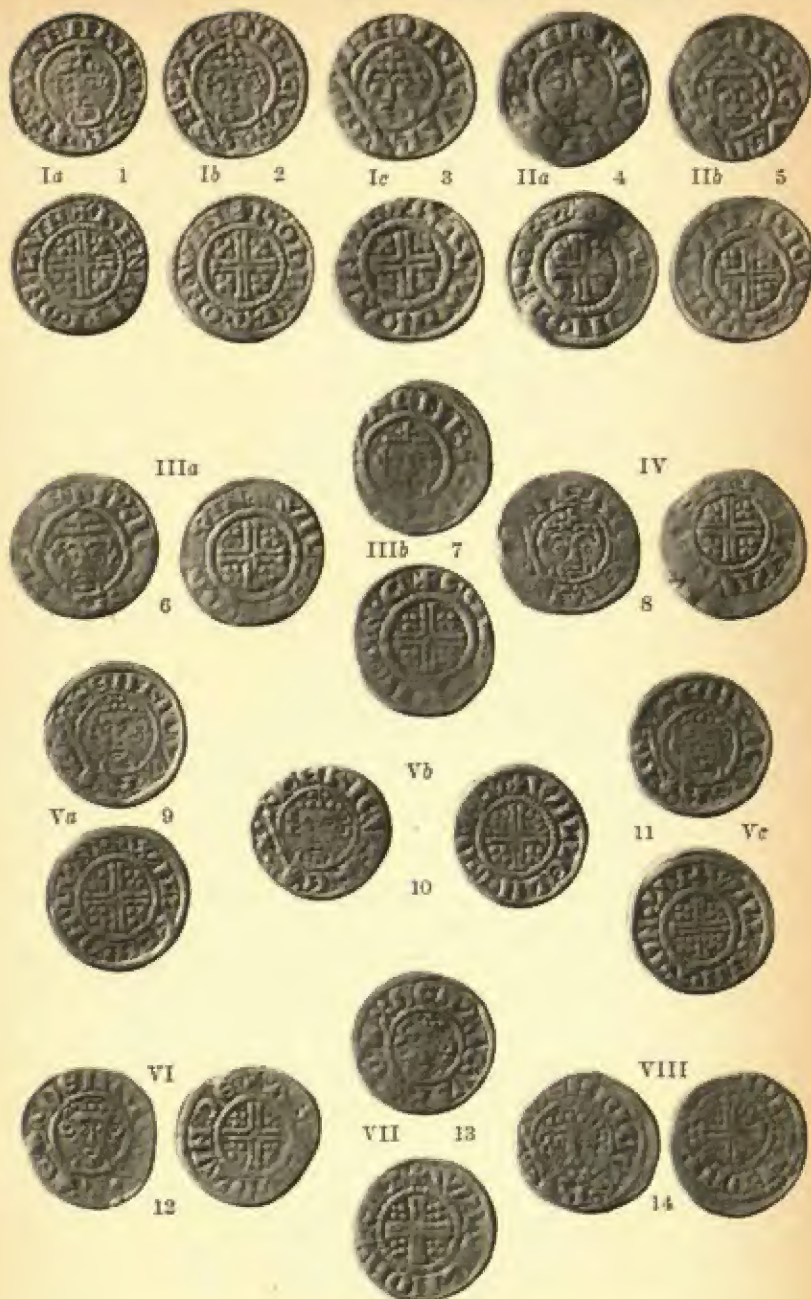
ENGLISH INFLUENCE ON DANISH COINS.











SHORT-CROSS COINAGE: GENERAL TYPES.

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PATRON
HIS MAJESTY THE KING

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PROCEEDINGS

OF THE

ROYAL NUMISMATIC SOCIETY.

PROCEEDINGS OF THE ROYAL NUMISMATIC SOCIETY.

SESSION 1915—1916.

OCTOBER 21, 1915.

SIR ARTHUR EVANS, P.S.A., F.R.S., M.A., LL.D., D.Litt., &c.,
President, in the Chair.

The Minutes of the Ordinary Meeting of May 20 were read and approved.

The following Presents to the Society were announced and laid upon the table, and thanks ordered to be sent to their donors :

1. *Revue Numismatique*. 1^{er} trimestre, 1915.
2. Portraiture of our Stuart Monarchs on their Coins and Medals. Pt. 6. By Miss Helen Farquhar ; *from the Author*.
3. Statutes and Statutory Rules relating to Coinage in force on December 31, 1914 ; *from the Deputy Master of the Mint*.
4. *Manuale elementare di Numismatica*. 5^a edizione. By S. Ambrosoli and F. Gneecchi ; *from F. Gneecchi*.
5. *First Lessons in Numismatics*. By Henry Browne ; *from the Author*.

6. Large U.S. Cents. By Theodore J. Venn; *from the Author.*
7. Journal of Hellenic Studies. Vol. xxxv, Pt. 1.
8. Horniman Museum Report for 1914; *from London County Council.*
9. Canadian Antiquarian and Numismatic Journal. Vol. xii, Nos. 2 and 3.
10. Foreningen til Norske Fortidsmindesmærkers Bevaring. Aarsberetning, 1914.
11. American Journal of Archaeology. Vol. xix, Nos. 2 and 3.
12. Bulletin de la Société des Antiquaires de l'Ouest. Tome iii, Nos. 6 and 7.
13. Finska Fornminnesföreninges Protokoll 11.
14. Annual Report Smithsonian Institute, 1913.
15. History of the Standard Bank of South Africa; *from the Directors.*
16. Journal of Royal Society of Antiquaries of Ireland. Vol. xlv, Pts. 2 and 3.
17. Revue Suisse de Numismatique. Tom. xix, Pt. 2, and xx, Pt. 1.
18. American Journal of Numismatics, 1914.
19. Coins and Medals of Transylvania. By H. Wormser; *from the Author.*
20. Gold Coinage of Latin America. By H. F. Williams; *from the Author.*
21. Some Rare or Unpublished Greek Coins. By E. T. Newell; *from the Author.*
22. Coinage of the West Indies. By Howland Wood; *from the Author.*
23. War Medals of the Confederacy. By R. L. Benson; *from the Author.*
24. Archaeologia Aeliana. Vol. xii.
25. Administrative Report of the Government Museum, Madras, 1914-15.

26. Ancient Coinage of Southern Arabia. By G. F. Hill ;
from the British Academy.

27. *Rivista Italiana di Numismatica.* Fasc. 2, 1915.

28. Royal Irish Academy Proceedings. Nos. 17, 18, and 19.

Mr. F. A. Walters exhibited a denarius of Gallienus
(Cohen 960, wrongly described as a quinarius). *Obv.* IMP.
GALLIENVS AVG. *Rev.* **SECVRIT PERPET.**

The President exhibited quinarii of Geta, Gallienus, and
Saloninus.

Mr. Webb showed a quinarius of Saloninus. *Obv.* **PCL**
VALERIANVS NOB CAES. *Rev.* **PRINCIPI IVVEN-**
TVTIS.

Mr. Henry Garside exhibited the nickel 5 and 10 cents of
1909 issued by the Germans for currency in Kiao Chau.

Rev. Edgar Rogers exhibited an unpublished drachm of
Antiochus VI with Tryphon monogram behind the head on
the obverse, and also two Corean amulets.

Mr. Webb, on behalf of Mr. Gunn, showed a very fine
bronze coin of Probus. *Rev.* **ADVENTVS AVG,** mm. **R.S.**

Dr. Codrington read a paper on "Some Coins from Tra-
vancore", and exhibited an extensive series of coins in
illustration of it, including a number of rare gold coins
struck at coronations and other ceremonial occasions.

Professor Oman read a paper on "The Decline and Fall
of the Denarius in the Third Century A.D.", in which he
discussed the survival of the denarius and quinarius in the
third century A.D. long after the introduction of the anto-
ninianus. (This paper is printed in this volume, pp. 37-60.)

NOVEMBER 18, 1915.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the Chair.

The Minutes of the Ordinary Meeting of October 21 were read and approved.

The following Presents to the Society were announced and laid upon the table, and thanks ordered to be sent to the donors :

1. *Revue Numismatique*, 1915. Pt. 2.
2. Presidential Address to the Royal Society of Canada by R. W. MacLachlan, Esq. ; *from the Author*.

Sir John Fox Dillon, Bart., J.P., D.L., C. W. Dyson Perrins, Esq., J.P., F.S.A., F.Z.S., and A. W. Poyser, Esq., M.A., were elected Fellows of the Society.

The President exhibited a didrachm of Terina, *obv.* **TEPI-NAION** female head (" Terina "), Regling no. 69, apparently struck over a didrachm of Kroton with eagle and spray ; the head and neck of the eagle are visible on the nymph's cheek ; and two didrachms of Kaulonia from the same obverse and reverse dies (Carelli, Pl. clxxxviii, 29). The reverse design has been engraved on a die which seems to have been used for some other purpose. The engraver worked over a sunken part of the old design somewhat resembling an axe-hammer. Part of the body of the stag and the letters **VAO** of the inscription are engraved over this ; in both cases the obverse design is set at the same angle as that of the reverse, but not corresponding with it. Also a 'Pegasos' of the Amphiloehian Argos countermarked on helmet with eight-rayed star, the monetary badge of Itanos (found at Alonides, Mylopotamo, Crete).

Mr. G. F. Hill showed a brass mould for a coin of the first century A.D., possibly of Messalina with Greek inscription, found with Roman antiquities on the Post Office site.

Mr. Henry Garside exhibited a series of British gold, silver, and bronze coins showing various technical defects.

Rev. Edgar Rogers showed a tetradrachm of Antiochus I from the same dies as a British Museum coin showing a flaw further developed.

Mr. J. Mavrogordato brought a stater of Aegina from broken obverse die of date before 550 B.C.; a didrachm of Athens 527-430 B.C. with money-changer's cut on obverse; and a bronze coin of Syracuse 344-317 B.C. struck from damaged obverse die.

Mr. S. W. Grose, of the Fitzwilliam Museum, Cambridge, read a paper entitled "A Note on Greek Dies". (This paper is printed in this volume, pp. 113-132.)

Mr. Grose then read a second paper on "Some Rare Varieties of Coins of Magna Graecia and Sicily" in the McClean collection. Among the most notable were the following: Neapolis, a plated didrachm of very fine style considerably over maximum weight; a Terina didrachm restruck over Neapolis; a Metapontum half-stater wrongly dated and a stater with Ares(?) for type, &c.; Rhegium, two bronze coins struck over different coins of the Bruttii; Locri, stater with eagle in wreath struck over a Pegasos coin; Entella restruck over a drachm of Catana; Leontini, with **ΣΥΡΑ** counter-mark; Catana, a rare tetradrachm of unusual style; Messina staters with **ΛΟ: Π**; and head of Pelorias; Panormus with Punic and Greek inscription; Syracuse, transitional tetradrachm with **Ω** in ethnic, and restruck bronze coins of Hiketas.

DECEMBER 16, 1915.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the Chair.

The Minutes of the Ordinary Meeting of November 18 were read and approved.

The following Presents to the Society were announced, laid upon the table, and thanks ordered to be sent to the donors:

1. Annual of the British School at Athens. Vol. xx.
2. Journal International d'Archéologie Numismatique. Pts. 3 and 4, 1914, and 1, 1915.
3. Proceedings of the Cambridge Antiquarian Society. Vol. xxvii.
4. Outside the Barnwell Gate, by Dr. H. P. Stokes; *from the Author.*
5. De Munten van Amelanden, by J. Schulman; *from the Author.*

Mr. R. B. Whitehead, I.C.S., was elected a Fellow of the Society.

Mr. Percy H. Webb exhibited a fine selection of bronze coins of Nero, including 11 asses of Janus, Victory, Genio Augusti and Nero as lyrist types; 5 semisses (with S) of the agonistic table type, weighing from 44 to 72 grains, and 2 without S; 8 of the Roman type, 5 of the column, helmet and shield type, 7 owl on altar type, and 3 denarii showing development of portraiture of Nero, and 7 Greek or Egyptian bronze coins of Nero, Agrippina, and Poppaea.

The Rev. E. A. Sydenham read a paper on the "Coinage of Nero". The paper was an attempt to deal with some of the more general problems arising from a study of Nero's coins. The main points dealt with were the following: (1) The Senatorial monopoly of the coinage during the first period of the reign. (2) The Emperor's encroachment on the Senatorial rights after the year 64 A. D. (3) The nature

and importance of Nero's currency reform, in connexion with which was discussed the probable standard of weights adopted in the reformed coinage. (4) The discrepancy which occurs in the dating of Nero's coins. (5) The characteristics of the mints of Rome and Lugdunum under Nero, and the probable significance of the symbols, aegis and globe. (This paper is printed in this volume, pp. 13-36.)

JANUARY 20, 1916.

SIR HENRY HOWORTH, K.C.I.E., &c., Vice-President, in the Chair,

The Minutes of the Ordinary Meeting of December 16, 1915, were read and approved.

The following Presents to the Society were announced, laid upon the table, and thanks ordered to be sent to the donors :

1. British Numismatic Journal. Vol. x; *presented by Miss Helen Farquhar.*

2. Annual Report of the Smithsonian Institute, 1914.

3. Canadian Antiquarian Journal. Vol. xiii, Pt. 4.

4. American Journal of Archaeology. Vol. xix, Pt. 4.

5. Revue Numismatique. Vol. xix, Pt. 3.

Captain G. B. Pears, R.E., and Everard Mylne, Esq., were elected Fellows of the Society.

Mr. Henry Garside exhibited the quarter and twelfth anna, both dated 1888, of Dewas States, S.B.

Col. H. W. Morrieson exhibited the following coins of Queen Elizabeth :

3 shillings—(1) mm. Martlet, no inner circle; (2) mm. Lis, do., 3 pellets at end of legend on obverse; (3) *obv.* mm. Key, *rev.* Wool-pack. 4 sixpences—(1) *rev.* mm. Cross over Cinquefoil 1578, 8 over 7; (2) *rev.* mm. Crescent

over Scallop 1588, 8 over 7, milled 1563 and 1566. 3 groats—mm. Lis, large bust with and without inner circles and small bust with inner circle. 1 threepence—mm. Cinquefoil 1578, *rev.* double-struck showing two dates. 3 half-groats—(1) mm. Lis, no inner circles; (2) mm. Bell, no dots behind head; (3) *obv.* mm. Ton, *rev.* Woolpack. 1 three half-pence—mm. Acorn 1574, 4 over 3. 2 pennies—(1) mm. Lis, no inner circle; (2) *obv.* mm. Key, *rev.* Woolpack. 1 three farthings—1573. 1 halfpenny—no mm.

Mr. Henry Symonds read some historical notes on the mint of Queen Elizabeth and those who worked there. (This paper is printed in this volume, pp. 61-105.)

FEBRUARY 16, 1916.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the Chair.

The Minutes of the Ordinary Meeting of January 20 were read and approved.

The following Presents to the Society were announced, laid upon the table, and thanks ordered to be sent to their donors:

1. Aarbøger for Nordisk Oldkyndighed og Historie, 1914.
2. Archaeologia Cantiana. Vol. xxxi.
3. The Numismatist. January, 1916.
4. Journal of Hellenic Studies. Vol. xxxv, Pt. 2.
5. Numismatische Circular. Vol. xxiii, 1915; *from Messrs. Spink & Sons.*
6. A Guide to the Coins of English Sovereigns, presented to Eton College by Miss Helen Farquhar; *from Miss Farquhar.*
7. Rivista Italiana di Numismatica. Fasc. iii-iv, 1915.

Messrs. William Gillies, Christopher Ogle, and Alfred Meigh were elected Fellows of the Society.

Mr. P. H. Webb exhibited a fine series of Roman bronze coins, chosen to exhibit types of patina.

Mr. H. W. Taffs showed a one-third farthing of Queen Victoria of 1844 with *rev.* legend **BRITANNIAR RE**, &c., for **REC** (apparently unpublished).

Mr. F. A. Walters showed an early shilling of Queen Elizabeth, mm. crosslet, of unusual style and size, possibly a pattern piece.

Mr. G. F. Hill exhibited specimens of the iron 10 and 5 pfennig pieces recently issued in Germany to replace the corresponding nickel pieces.

Mr. J. Mavrogordato read the second portion of his paper on "Chronological Arrangement of the Coins of Chios", in which he dealt with the periods 478-334 B. C. (This paper was printed in Vol. xv, pp. 361-432.)

MARCH 16, 1916.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the Chair.

The Minutes of the Ordinary Meeting of February 17 were read and approved.

The following Presents to the Society were announced and laid upon the table, and thanks ordered to be sent to their donors :

1. Notes on a Collection of Coining Instruments in the Edinburgh Antiquarian Museum, by W. J. Hocking; *from the Author.*

2. Proceedings of the Society of Antiquaries of Scotland. Vol. xlv.

Mr. G. C. Haines was elected a Fellow of the Society.

Mr. William Gilbert exhibited an unpublished London seventeenth-century token. *Obv.* IOHN • FOX • AT Y^E • GEORG • St. George and Dragon. *Rev.* • IN • SHOWE • LANE • I.A.F.

Mr. H. W. Taffs showed a sixpence of William IV of 1881 countermarked with T = Tortola or Tobago; and a fine 5-taler piece of John George of Saxony.

Mr. F. A. Walters showed a penny of Henry, Earl of Northumberland, N : ENCV : COM, bust to r. with sceptre: *Rev.* of Scottish type, of which only one specimen has been previously noted.

Rev. E. Rogers showed the new 5-cent piece of Belgium issued by the Germans; and a German Jewish New Year's token.

Mr. L. A. Lawrence read a paper on the Short Cross coinage, in which he gave a *résumé* of his researches on this period and proposed a final classification.

Mr. G. F. Hill read a note on a new countermarked Spanish doubloon of the West Indies bearing the countermarks G. C. and an alligator. The initials are presumably those of the issuer, and for the present the piece might be attributed to Jamaica.

APRIL 13, 1916.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the Chair.

The Minutes of the Ordinary Meeting of March 16 were read and approved.

The following Presents to the Society were announced and laid upon the table, and thanks ordered to be sent to their donors :

1. Journal of the Royal Society of Antiquaries of Ireland.
Vol. xlv, Pt. 4.

2. Proceedings of the Society of Antiquaries of London.
Vol. xxvii.

3. List of Members and of Publications of the Cambridge
Antiquarian Society. October, 1915.

Annual Report of the Deputy Master of the Mint, 1914.

Mr. G. C. Haines was admitted a Fellow of the Society.

Mr. H. Garside exhibited the bronze 10, 5, and 1 pfennig
piece of the late German colony of New Guinea, of 1894,
the only date issued.

Mr. J. G. Milne read a paper on a hoard of 52 Persian
silver sigloi, said to have been found in Ionia. Many of
them bear punch-marks. The incuse reverses showed certain
hitherto unnoticed varieties; one group contains a small
lion's head in profile, another an *intaglio* lion's head in profile,
another a device which may possibly be a lion's scalp. It
was suggested that these symbols indicate a mint at Sardes.
The coins are all of the best-known types of sigloi, on
which the king is represented with a bow and spear, and
a bow and dagger respectively. (This paper is printed in
this volume, pp. 1-12.)

Mr. G. F. Hill described a provisional classification of
the darics and sigloi, and pointed out that the evidence
of recent finds showed the only chronological classification
which had hitherto been suggested to be wrong. As regards
the punch-marks, the presence of signs which could be
interpreted as Cypriote or Phoenician seemed to indicate
a Levantine origin.

MAY 18, 1916.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the Chair.

The Minutes of the Ordinary Meeting of April 18 were read and approved.

Mr. S. R. Berry was elected a Fellow of the Society.

Colonel H. W. Morrieson and Mr. L. G. P. Messenger were appointed to audit the Treasurer's accounts.

The following Presents to the Society were announced, laid upon the table, and thanks ordered to be sent to the donors:

1. American Journal of Archaeology. Vol. xx, No. 1.
2. The Stewart Lockhart Collection of Chinese Copper Coins, by Sir J. H. Stewart Lockhart; *from the Publishers.*
3. Brit. Mus. Catalogue of English Coins—The Norman Kings, by George Cyril Brooke. 2 vols.; *from the Trustees.*
4. Lead Tokens from Memphis, by J. G. Milne; *from the Author.*
5. Revue Numismatique. 4^{me} trimestre, 1915.

Mr. L. L. Fletcher exhibited specimens in copper and bronze of a Fenian medal of 1866.

Prof. Oman exhibited five tetradrachms showing the five types of Antiochus IX Cyzicus:

1. Very youthful head. *Rev.* Pallas, before capture of Antioch in 113 B.C.
2. Young unbearded head. *Rev.* Zeus seated, during tenure of Antioch, 113-111 B.C.
3. Head with short beard. *Rev.* Pallas, late years, 111-95 B.C., during second war with Antiochus Grypus.
4. Head with fuller beard. *Rev.* Pallas; as No. 3.
5. Similar head. *Rev.* Tyche standing; as No. 3.

Prof. Oman read a paper on the history and coinage of Antiochus Grypus, in which he gave a sketch of his career,

and proposed a classification of his coinage which corrects many errors in former attributions, chiefly by the aid of coins that have since come to light.

JUNE 15, 1916.

ANNUAL GENERAL MEETING.

SIR ARTHUR EVANS, P.S.A., F.R.S., &c., President, in the
Chair.

The Minutes of the Annual General Meeting of June 17, 1915, were read and approved.

Messrs. L. G. P. Messenger and H. D. McEwen were appointed scrutineers of the Ballot for the election of office-bearers for the ensuing year.

Rev. J. A. Vanes was elected a Fellow of the Society.

Mr. G. F. Hill exhibited a series of German war medals commemorating the sinking of the *Lusitania*, the Battle of the Falklands, Count Zeppelin, Admiral Tirpitz and the submarine campaign, &c.

The following Report of the Council was laid before the meeting :

"The Council again have the honour to lay before you their Annual Report on the state of the Royal Numismatic Society.

It is with deep regret that they have to announce the deaths of the following Fellows of the Society :

Earl Kitchener of Khartoum, O.M., &c.

R. Frentzel, Esq.

Rev. Cooper K. Henderson.

The Very Rev. Dr. Jex-Blake.

Professor A. S. Napier.

H. Niklewicz, Esq.

J. L. Strachan-Davidson, Esq., Master of Balliol.

They have also to announce the resignations of the following seven Fellows:

E. L. Arnold, Esq.
S. Bousfield, Esq.
L. Clements, Esq.
A. Powell-Cotton, Esq.
Vincent A. Smith, Esq.
T. E. Tatton, Esq.
R. J. Williams, Esq.

On the other hand, they have to announce the election of the following twelve new Fellows:

S. R. Berry, Esq.
W. Gillies, Esq.
Alfred Meigh, Esq.
Christopher Ogle, Esq.
A. W. Poyser, Esq.
Rev. J. A. Vanes.
Sir John Fox Dillon, Bart.
G. C. Haines, Esq.
Everard Mylne, Esq.
Captain G. B. Pears, R.E.
C. W. Dyson Perrins, Esq.
R. B. Whitehead, Esq., I.C.S.

and of the Newcastle Literary Society and the St. Louis Numismatic Society.

The number of Fellows is therefore:

	Ordinary.	Honorary.	Total.
June, 1915	272	16	288
Since elected	14	—	14
	286	16	302
Deceased	7	—	7
Resigned	7	—	7
June, 1916	272	16	288

The Council have also to announce that they have awarded the Society's Medal to M. Théodore Reinach, Membre de l'Institut, at present a Staff Major in the French Army, in recognition of his distinguished services to Greek Numismatics and Archaeology."

The Hon. Treasurer's Report, which follows, was then laid before the Meeting.

STATEMENT OF RECEIPTS AND DISBURSE-

FROM JUNE, 1914,

Dr.

THE ROYAL NUMISMATIC SOCIETY IN ACCOUNT

	£	s.	d.	£	s.	d.
<i>To cost of Chronicle—</i>						
Printing	244	6	0			
Plates.	13	5	11			
				257	11	11
<i>To Books, &c.</i>				3	12	0
„ <i>Lantern Expenses</i>				10	18	3
„ <i>Rent and Refreshments</i>				41	18	2
„ <i>Sundry Payments</i>				9	3	11
„ <i>Balance carried forward—</i>						
General Account	166	0	7			
Research Account	19	12	8			
				185	13	3
				2508	12	6

MENTS OF THE ROYAL NUMISMATIC SOCIETY

TO JUNE, 1915.

WITH PERCY H. WEBB, HON. TREASURER.

£r.

	£	s.	d.	£	s.	d.
<i>By Balances brought forward—</i>						
General Account	178	12	11			
Research Account	17	17	9			
				196	10	8
<i>By Subscriptions—</i>						
190 Ordinary Subscriptions (less loss on foreign cheques, &c.)	199	6	9			
8 Entrance Fees	8	8	0			
1 Life Subscription	15	15	0			
				223	9	9
<i>By Sales of Chronides</i>				54	19	1
<i>„ Dividends on Investments</i>				23	13	0
				£508	12	6

Audited and found correct,

H. W. MORRIESEN,
LEOPOLD G. P. MESSENGER, } *Hon. Auditors.*

June 8, 1916.

The Reports of the Council and of the Treasurer were adopted on the motion of the President.

The President then handed the Society's Medal to Mr. Allan to be forwarded to M. Théodore Reinach, who was unable to be present, and addressed the Meeting as follows:

MR. ALLAN,—I have much pleasure in handing you the Medal of this Society for transmission to Monsieur Théodore Reinach, Member of the Institute of France.

In Monsieur Reinach we honour indeed a veteran of Numismatic research. To his labours in many fields I can here only refer. The subject which perhaps he has done most to illustrate is that which concerns the difficult questions of the relations of metals, amongst which his study on "Bimetallism in Antiquity" is perhaps the most important.

In his work on Jewish Coins, of which a revised translation in English appeared in 1903, he has thrown new light on a subject which both as regards its period—from the first revolt of the Maccabees to the final subjugation of Judaea by Titus—the scene where this historic tragedy was enacted, and the *dramatis personae*, must ever be a centre of human interest. Monsieur Reinach has handled his materials with a master hand.

His researches into the ancient numismatics of Asia Minor have been of the most varied and far-reaching kind, and since 1904 he has been associated with Monsieur Babelon in the great work of editing Waddington's *Recueil Général des Monnaies d'Asie Mineure*. He has also communicated valuable papers on the origins of Pergamum and on the Delphic Monetary System. In his work *L'Histoire par les Monnaies*, published at Paris in 1902, M. Reinach has collected several of his articles.

I may conclude with an example of the "curious felicity"

shown by M. Reinach in a department of numismatics with which I have myself been somewhat specially concerned. By a happy inspiration he explained the mysterious *Caelator* "Acragas", who appears in Pliny's text, side by side with the known *toreutae* Boethus and Mys, as the result of a simple mystification. It may well have been due, as he acutely suggests, to the misinterpretation of the name **ΑΚΡΑΓΑΣ** on a fine "medallion" of that city inserted like Syracuse in the bottom of silver cups, such as those actually cited by Pliny in this connexion. These were presented by the Agrigentines, in the years immediately succeeding the emission of these splendid coins, to the Temple of Athena at Lindos, to which, through Gela, they stood in a filial relation. In spite of some rather narrow criticisms, Monsieur Reinach's luminous conjecture may still be said to hold the field.

Mr. Allan read the following letter from M. Reinach :

2, *Place des États-Unis*,
Paris,
May 28, 1916.

DEAR SIR,

I am greatly touched by the unexpected honour which the Royal Numismatic Society has been pleased to bestow on my work.

I need hardly say with what feelings of gratitude and acknowledgement I shall be glad to accept their medal. I consider it not only as a precious token of the few novel results due to my personal labour in a sphere where every pioneer is a debtor to the splendid achievements of British Scholarship, but also as a new link between French and British Archaeologists, one of the many intellectual ties indeed which may tend to strengthen and perpetuate the invaluable friendship and co-operation of our two nations in this as in other fields.

Allow me to thank you personally for your kind offer to receive the medal on my behalf, and believe me with best regards,

Yours sincerely,

(Signed) THÉODORE REINACH,

*Membre de l'Institut, actually Staff-Major F. A. at the
Under-Secretariate of State for Supply and Transport.*

The President then delivered the following address:

ADDRESS OF THE PRESIDENT.

Through another year of prevailing stress and preoccupation caused by the Great War the Society has successfully "carried on". The volume of the *Chronicle* just completed is indeed of more than the average bulk, and financially we are still well able to hold up our head.

By the tragic removal—so fresh in the minds of all—of Lord Kitchener from the sphere of his colossal labours this Society, indeed, is affected in a particular way. It was truly a distinguished homage to the far-reaching interests of numismatic studies that a man whose life was so greatly occupied with military activities should have sought our membership. Lord Kitchener indeed in no part of his career, whether engaged in the Survey of Palestine, in Egypt, or the Sudan, was indifferent to the relics of antiquity that came across his path. He was, moreover, a born collector, though in the case of coins he showed himself ready on many occasions to cede interesting pieces to the National Cabinet. Various specimens of coins of Ptolemaic Egypt and Alexandria, of Judaea and Nabataea, of the Caliphs and of King Baldwin of Jerusalem, reached the British Museum through his agency, and in 1897 he presented to it a silver piece struck by the Mahdi.

Lord Kitchener was elected member of our Society in 1876, and was one of our oldest members.

In Arthur Sampson Napier, successively Merton Professor of English Language and Literature and Rawlinsonian Professor of Anglo-Saxon in the University of Oxford, elected in 1893, the Society and the country have to deplore the loss of one of the greatest living authorities on the old English language and antiquities. In 1898 he communicated a valuable note to this Society corroborating Mr. Lawrence's view that the Saxon coins with mint inscriptions such as **BARD**, **BARDAN** should be referred to Barnstaple and not to Bardney.

In the late Master of Balliol, Mr. J. L. Strachan-Davidson, the Society has lost another of its most distinguished members, known apart from his other activities in many fields of College and University work for his deep researches into certain periods of history. He did not make any numismatic contributions to our Society, but he had availed himself of opportunities supplied by repeated visits to Egypt to collect many fine specimens of Alexanders.

Considering the circumstances of the hour, in which we find ourselves fighting side by side and shoulder to shoulder with our neighbours across the Channel, it must afford special satisfaction that the Medal of the Society should be to-day awarded to Monsieur Théodore Reinach, Member of the Institute of France, for his great services to ancient numismatics.

The papers read to the Society during the past year have as usual ranged over a wide field.

Greek numismatics as on former occasions are well represented. Mr. E. S. G. Robinson has continued his interesting study on the coins of the Cyrenaica. He deals largely with the obscure period of the third century B. C., which follows on the disastrous termination of Ophellas' expedition. Amongst other points here discussed is the appearance of the crab in the field of a series of coins, including the remarkable piece which supplies the only example of the

non-Doric form of the civic name **KYPH**. Mr. Robinson brings further evidence to support L. Müller's view that this marine symbol indicates that this group of coins was struck in the harbour-town of Apollonia.

He notes the change in the mint organization that follows the substitution of the Rhodian didrachms for those of Attic weight after 308 B.C., and shows that the small gold pieces of Cyrene conformed to the general rule in being adaptable to more than one standard, in this case both to the Attic and Phoenician as, earlier, to the Attic and Samian. Especially happy is his identification of the standard of the silver pieces of the Fourth Cyrenaic Period, which Müller had regarded as much reduced "Asiatic" (Samian) didrachms, with that of contemporary Crete, as seen at Chersonnesos, Kydonia, and Polyrrhenion, representing a reduced form of the Æginetic standard. In confirmation of this view I may mention the fact that drachms of Cyrene of third-century fabric are of continual occurrence on Cretan soil.¹ They may indeed be described as no less frequent than the silver pieces of the native Cretan cities—which can never themselves be described as abundant—so that the Cyrenaic coins formed a recognized part of the insular currency, and were indeed at times overstruck by local types.

Numismatic evidence of the reorganization of Cyrene by the two Megalopolitan philosophers, Ecdemus and Demophanes, between 252 and 235 B.C., is, as Mr. Robinson well points out, supplied by the monogram **ΚΑ**, of which the obvious resolution is **ΔΗΜ(ΟΦΑΝΗΣ)**. This occurs on copper pieces with the inscription **KOINON**, the mark of an autonomous community of Cyrenaic cities. In this connexion its appearance is especially significant as showing

¹ The commonest type that occurs in Crete, so far as my experience goes, is that represented in Plate vi, No. 84 of Mr. Robinson's list.

that the philosophers who had assisted Aratus in the liberation of the Achaean cities had carried out a similar work in Cyrene. Demophanes himself was a disciple of Arkesilaos, the founder of the New Academy, whose name has certainly a Cyrenaean ring.

Mr. J. Mavrogordato has continued his elaborate monograph on the chronology of the Coins of Chios, and in more than one point takes occasion to differ from the conclusions of Miss Agnes Baldwin.¹ We are struck by the singular sameness of the types and the long persistence of the archaic tradition. The conservatism in type indeed is such that the disappearance of the stopper from the amphora must be regarded as an event! Even the insertion of magistrates' names on the reverse of the later pieces with their dull cruciform survival of the old *quadratum incusum* must be hailed as a relief. Some of the names are of historical interest. Among them those of Apollonides, Athenagoras, and Phesinos had already appeared as the names of the Chian leaders who threw open the gates to a Persian garrison. Skymnos recalls the later *periegetes*. But surely as a personal name Eridanos, solely associated with a semi-mythical river, is passing strange.

On the basis of specimens in the McClean Collection at Cambridge Mr. S. W. Grose has made some interesting contributions to Magna-Graecian numismatics. To the small silver pieces illustrating the alliances of Sybaris at different epochs in her chequered history he has added one bearing on its obverse side the name of Laus. It clearly belongs, as he well points out, to the events of 453 B.C., when Sybaris, which had been destroyed by Kroton in 510 B.C., was refounded with the aid of Poseidonia. The two *phialae*

¹ As set forth in her monograph on the Electrum and Silver Coins of Chios during the sixth, fifth, and fourth centuries B.C. (*Journ. of the American Numismatic Society*).

that are here seen on the reverse reappear in fact on small contemporary silver pieces recording the alliance of Poseidonia and Laus. The alternative views propounded by Mr. Grose, that an early silver piece representing on the obverse the Sybarite bull with its head turned back in the archaic pose and on the reverse the tripod lebes of Kroton was a cynical reference to the second foundation of Sybaris, or indeed to its second destruction, seem to me to be both inconsistent with the character of the Greek coinages. The first suggestion of a "cynical reference" does not require discussion. The idea that this and the earlier incuse coinages with the types of Sybaris and Kroton were struck to commemorate the successive overthrows of the former city¹ does not conform to what we know of such associations, which leads to the conclusion that they were in all cases alliance pieces. There is no difficulty in supposing that in the years immediately preceding 510 B.C., the date of the destruction of Sybaris by the Krotoniate arms, there may have been a temporary alliance on an equal footing between the two cities. It is quite consistent with probabilities that even after the overthrow of the great city some remnant of the population may have been permitted to perpetuate the civic name in a dependent position, and to strike coins of small denomination in which what may really have been an abject subjection was veiled with the symbols of alliance.

Mr. Grose has shown that a connected series of Krotoniate coins presenting as the reverse type an eagle seated on a thunderbolt belong to the reduced standard of c. 102-99 grains to the stater. This standard first appears at Tarentum, Herakleia, and Thurioi in the time of Pyrrhus' hegemony from 281 B.C. onwards. The eagle on a thunder-

¹ Cf. Von Duhn, *Z. f. Num.* vii, p. 310; Busolt, *Gr. Gesch.* II², p. 770.

bolt is itself a Pyrrhic badge, and appears regularly on the gold coinage of Tarentum. The conclusion at which Mr. Grose arrives is that this series of Krotoniate didrachms must be equated with those of the reduced standard in other Magna-Graecian cities. Kroton, it is true, was sacked by Agathokles in 299 B.C., and was subsequently garrisoned by Rome. But in 280 B.C. the Campanian legion here stationed threw off its allegiance, and Roman dominion was only restored in 277 B.C. It is to this period of comparative freedom (280-277 B.C.) that Mr. Grose would refer the above series of Krotoniate coins with the eagle on the thunderbolt.

This conclusion is on the face of it attractive. It must at the same time be observed that the eagle here seen is not the Pyrrhic eagle with expanding wings and the head looking forward, but a bird of earlier local tradition with closed wings and the head turned back—such as he appears on a series of didrachms going back to the close of the fifth century B.C. The style here no doubt is later and flatter, but can it be brought down so late as the time of Pyrrhus? Has the eagle's plumage anything of the Pyrrhic or Ptolemaic character? Such questionings are not by any means satisfied by an inspection of the tripod lebes as it appears on the reverse of some of these pieces. Here again we see the earlier tradition closely followed.

A hoard of Persian sigloi recently acquired for Mr. J. G. Milne at Smyrna has supplied some interesting new evidence as to the punch-marks on this class of coins. The majority of such marks have been taken by Mr. Rapson to be derived from Brahmi or Kharosthi characters,¹ but the series afforded by the present find certainly brings other elements to the fore, and Mr. Milne's conclusion seems incontrovertible that they come rather from the West than the East of the Persian Empire. This, moreover, is in harmony with the

¹ *J.R.A.S.*, 1895, pp. 865 seqq.

evidence of the hoard of coins found in Cilicia of heterogeneous composition, but in which were included Athenian "owls", Persian archers, and issues of certain cities and Persian satraps in Cilicia, described by Mr. Newell.¹ A few characters are clearly Phoenician letters, the triskelis might suggest Lykian analogies, but the most frequent parallels are certainly with signs of the Cypriote syllabary.

The introductory study of "The Coinage of Nero" communicated by Mr. E. A. Sydenham calls attention to some important aspects of what he justly describes as "one of the most complete monetary systems of antiquity". He divides the coinage into two clearly defined periods: (1) A. D. 54 to 63, (2) A. D. 64 to 68. In the first class the absence of types bearing any historical allusion is to be noted, as well as the non-occurrence of Senatorial brass. The formula **EX S. C** which occurs on all the coins of this class shows however that Nero had "waived his right of issuing gold and silver which had been the imperial perquisite since the monetary reform of Augustus (15 B. C.), and had allowed the Senate the sole right of coinage".

In considering the reform of the coinage in A. D. 63, Mr. Sydenham inclines to Soutzo's view that it was a carefully thought out attempt to unify the standard of coinage throughout the Empire by harmonizing the Roman with the Greek system. The relative values of brass and copper were also now definitely fixed as $1\frac{1}{2}$ to 1.

Mr. Sydenham effectively criticizes some of Mowat's views as to the establishment of a mint at Lugdunum, and the identification of the globe symbol with that city. The globe, as he shows, occurs on a number of coins whose style points to the Roman mint, and the real criterion is to be found in the style. The bold treatment of the portrait and high relief is characteristic of the Roman fabric, and the

¹ *Num. Chron.*, 1914, pp. 1 seqq., and p. 5, fig. 1.

flatter and more outspread manner of execution is the mark of the Lyons engravers. Certain particular obverse legends are found by Mr. Sydenham to go with the respective styles of portraiture.

Professor Oman's paper on "The Decline and Fall of the Denarius" calls us by a natural transition from the monetary system established by Nero to the innovations introduced by Caracalla in A. D. 214. Professor Oman gives good reasons for believing that the so-called "Antoninianus" now struck, originally representing about 80 grs. in weight as against the contemporary denarius of about 54, was intended to circulate as $1\frac{1}{2}$ denarii, and was not, as has been sometimes alleged, a "double denarius". He finds an ingenious explanation for the new denomination in the simultaneous issue of lighter aurei of about 100 grs. as against the proper weight of 112, and suggests with some plausibility that 20 of these "Antoniniani" went to one of these reduced aurei. The aureus itself, as he shows, had been becoming progressively rarer, and the issue of these of lighter weight side by side with those of the full standard can, he thinks, be best explained by the growing practice of payment by weight rather than by the nominal value of the gold pieces. But with the further reduction of the aureus below 100 grs. by Caracalla's successors this arrangement ceased to be operative, and the so-called Antoniniani were no longer struck.

Why, then, were they restored by Balbinus and Pupienus and made the common coin of the realm by Gordian III's ministers about A. D. 242? Professor Oman finds an answer in the practical disappearance of the aureus except for sportulary purposes, and the need of some tolerably showy piece for official disbursements, which were made on an extensive scale. Meanwhile the existence of the new piece and its inconvenient relation to the old debased denarius was gradually fatal to the latter. Practically the last

important issue of billon denarii is, as Professor Oman points out, to be seen in the remarkable series of Postumus illustrating the Labours of Hercules. It may fairly be said that the original Roman silver mint, despite its sad deterioration in purity of metal, "expired in a blaze of mythological and artistic glory".

The debased quinarius shared the fate of the denarius. From the comparatively fine engraving of these small pieces it seems probable that they were largely of the nature of our "Maundy money", and were useful for donative purposes. It may be noted that the same characteristic attaches to the series of small bronze pieces of Diocletian's time.

Mr. H. L. Rabino has concluded his series of papers on the "Coins of the Shahs of Persia", touching in his final communication on the obscure and chaotic series of copper pieces struck between 1502 and 1877.

A small but interesting hoard of Saxon pennies found in Dorset has been described by Mr. Cyril Lockett. They included pieces of Cœnwulf of Mercia, Ecgbeorht of Wessex, Wulfred, Archbishop of Canterbury, and of Canterbury, probably *sede vacante*, with the legend **DOROVERNIA CIVITAS** in full. In Mr. Lockett's opinion the hoard was deposited in A.D. 825 or a little later.

Otherwise for English numismatics we have been almost solely indebted to Mr. Henry Symonds, who has contributed a series of studies based on documentary evidence now for the first time brought to bear on the history of our national Mint. In his study on "The Irish Coinages of Henry VIII and Edward VI" he has successfully undertaken the task of distinguishing between the earlier and the later series. He supplies the undoubted proof that the Irish coins of Henry VIII were struck at the Tower of London and Bristol Castle, and those of Edward VI at Dublin Castle. His demonstration is based on a laborious examination of the Irish State Papers and the volumes known as the

Letters and Papers of Henry VIII. The new "coin of the harp" groats and half-groats were first struck in 1536. For the second coinage of 1540 the names of "sixpence Irish" and "threepence Irish" were applied, and it was at this time (1541) that the important change in the style from "Dominus" to "Rex" took place. In the time of the third coinage (1544) we again hear of "harp-groats", and during this and the fourth coinage (of the succeeding year) the debasement of the metal, not peculiar to the Irish issues, proceeded. With the fifth coinage (1546) the striking of the Irish coins was transferred from the Tower to Bristol Castle. The coinage was shortly transferred to Dublin, and Mr. Symonds confirms Sir John Evans's view that from the accession of Edward VI in 1546 to 1552 the whole of Edward's money struck in Dublin bore the portrait and name of his father.

Sir John Evans's further conjecture that on the Dublin coins of Edward VI's first coinage the boar's head mint-mark might be a means of attributing them to the mint official Thomas Agard is confirmed by his indenture of appointment as "Under-Treasurer", in executing which Agard used a seal presenting a boar's head. The seal has since mysteriously disappeared from the document at the Record Office.

The **P** on Edward VI's second Irish coinage of 1550 is the mark of Agard's successor Pirry, who in 1552 also signed the contract for the king's third coinage. The debased English coinage had now been reduced to half its face value, and Irish moneys were now "cried down" to the same value as the English. The Irish coins now struck according to the indenture "called pieces of sixpence running for sixpence of lawful money" were really shillings corresponding in value with the English coins of the same denomination which had the lawful value of sixpence. Mr. Symonds identifies with one of these an Irish "shilling" of 1552 marked with a harp which was one of Pirry's

badges. These "shillings" are the only Irish coins that bear Edward VI's own name and titles.

In his paper on "The Mint of Queen Elizabeth and those who worked there", Mr. Symonds gives a valuable summary of unpublished mint records and other documents bearing on the subject. Some of these throw an amusing sidelight on the difficulty of satisfying the Queen on matters concerning her own effigy. Thus in October, 1560, Thomas Stanley, the Comptroller of the Mint, writes: "I am sorry the Queen's Majesty misliketh her stamp of her fine moneys." He trusts in God "that the next stamp shall be better". So, too, we hear (about 1582) of the painter's expenses "in riding from London to Winsor", and of two painters going from London to Hertford to consult the Lord Treasurer "concerning the drawing of the stamped money". Mr. Symonds suggests with some probability that the two painters were George Gower, who became Serjeant-painter in 1581 and Nicholas Hilliard, the Queen's miniature painter.

Elizabeth continued the policy of consolidation which reduced all the mints into a single establishment at the Tower. Her further endeavour, however, to counteract the debasement of the coinage is shown by these documents to have been greatly hindered by what Mr. Symonds, in default of a better name, describes as the "toleration Commissions". By these Commissions the quality and weight of the coins ordered by the indenture of 1572 suffered repeated reductions between 1578 and 1582, and the prestige that had accrued to Elizabeth from her reformation of the coinage was proportionately diminished.

Some new documentary light is thrown on the introduction of the "mill" coinage—already known in France and fifty years earlier in Italy—by Eloye Mestrell. For this coinage it was necessary to have, in addition to the *balancier* for striking the flan by means of a screw, a roller press

or *laminoir* for reducing the metal to the proper thickness previous to the punching out of the flan. Both Mr. Symonds and Mr. Hocking, who has supplied a note on this point, agree that certain purchases of steel in the years 1560 and 1561 entered in the Comptroller's book of expenditure were required for a roller press of this kind. Some new evidence is also given as to the opposition to the new-fangled methods—as bitter in London as it had been in Paris. This feeling found full vent in the opinion expressed in a letter written by Eloye's successor, Richard Martin: "neither the said engine or any workmanship to be wrought thereby will be either fit for the coinage or for the Queen's Majesty's profit." There is a good deal of human nature in all this, and the improved methods which ceased with the last issue of Elizabeth's mill pieces in 1572 were put off till Peter Blondeau again introduced them to the mint in 1645.

Mr. Symonds has also contributed some notes on the "Pyx Trials of the Commonwealth, Charles II and James II, from entries in the Exchequer Accounts".

It was my intention on the present occasion to call special attention to a curious chapter in numismatic history of which the present war has been the occasion. Since its beginning it appears that over 450 commemorative medals have been already struck in Germany, few of which rise to a high artistic level, though they throw an extraordinarily vivid light on the national psychology. Thanks to the generosity of a friend, who proposes to present a series of these to the British Museum, it has now been possible for Mr. Hill to exhibit some typical specimens to the Society. A comprehensive article on these German war medals, reprinted from the *Scotsman*, will also appear in the next number of the *Numismatic Chronicle*.

These medals give us a strange insight indeed into the beliefs and aspirations of the German people in all matters concerning the present struggle. Their issue in such

numbers by whatever hands must be regarded as a deliberate act of imperial policy. It has, indeed, been well pointed out in the article referred to, that the mere fact that many of them are of bronze, the use of which owing to the need of it for munitions has been so severely restricted in Germany, implies the cordial approval of the Government to their production. To the glorification of many national heroes, such as Admiral von Spee, Captain von Weddigen, Captain von Müller of the *Emden*, and others, no exception can certainly be taken, but we seem to be on different ground when we see the Crown Prince, "the Victor of Longwy", idealized as the "Young Siegfried" strangling a four-headed monster! Many of the pieces are satiric, as that showing Brother Jonathan trading munitions and the spectacled Wilson on the obverse, or another in which an Italian bersagliere is stuck behind by a Prussian bayonet. Hindenburg, of course, "the Liberator of East Prussia", has the lion's share—he is one of the four "burgs"—the fourth "feste Burg" being the old Prussian God. On medals of Von Tirpitz with the legend **GOTT STRAFE ENGLAND** the special instruments of the foresaid divinity appear as submarines on our coast; on another the inscription is **ENGLANDS VERGELTUNG**—"England's Retribution". Count Zeppelin's medals depict Zeppelins above the Tower Bridge and London in flames, while those of Von Kluck forecast for Paris a similar chastisement of heaven. Upon the reverse of these is seen above a burning city, a Fury on horseback holding a torch, the field being inscribed "**NACH-PARIS-1914**".

But the strangest human document of all is a medal actually glorifying the sinking of the *Lusitania*! It is reproduced opposite. The tickets at the Cunard Office are distributed by Death to a crowd of passengers whose motto is given as "Business over all"—(*Geschäft über alles*). On the reverse the great liner, transformed into a ship of war

with guns and aeroplane, goes down stern foremost beneath the engulfing waves, while an inscription below actually boasts of the deed as the work of a German submarine!

A fine French medal and plaquette celebrate the victory of the Marne, and there are others recording the prowess of the 75-millimetre cannon and the transport of the ashes of Rouget de Lisle to Paris.

It is true that mighty as has been the effort called forth in this country by the present struggle, the phase of laborious equipment, and on the whole of defensive strategy, through which we have been passing has not so naturally inspired medallic records. The only contributions indeed to the medallic history of Britain seem to be two pieces recording the bombardment of Scarborough by the German fleet on Dec. 16, 1914, the obverse of one of which bears the inscription **SCARBOROUGH STILL UNDISMAYED**. But in view of such brilliant successes as that recently achieved by our Fleet in the North Sea and of the sanguine hopes that we must all cherish in regard to the near future, it seems highly desirable that we should not leave to our enemies what has been practically a monopoly of numismatic illustration. It would accord little with the past history of our national medallists if at the present time we were not able to rise to the same level of commemorative ideal art as that which distinguished their masterpieces. As President of the Royal Numismatic Society, and in order to assist in however humble a way in summoning the best artistic assistance towards this end, I desire to offer a prize of £100 for the best two models of a medal to commemorate the great British sea victory off Jutland.

A vote of thanks to the President having been proposed for his address, Sir Arthur Evans announced the result of the ballot for office-bearers for 1916-1917 as follows:

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PROFESSOR C. OMAN, M.A., LL.D., F.S.A.
HENRY SYMONDS, Esq., F.S.A.
H. W. TAPPS, Esq.

The President then proposed a vote of thanks to the Scrutineers and Auditors, and adjourned the Society till October 19.



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